



Ignite Pro

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FXHOME

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1. Introduction

Thank you for using Ignite Pro. This plugin collection contains effects originally designed as components of HitFilm Pro, which have now been converted into plugins designed to augment and enhance your third party video editing software.

The Ignite Pro installer will detect all available hosts on your computer, and install all compatible plugins for each host which is present. Compatible hosts include:

- Adobe Premiere Pro CC
- Adobe After Effects CC
- Apple Final Cut Pro X
- Apple Motion
- Vegas Pro
- Sony Catalyst Edit
- DaVinci Resolve
- NUKE
- Grass Valley EDIUS Pro
- Grass Valley EDIUS Workgroup
- Avid Media Composer

Please note that some plugin functionality and availability will vary based on the capabilities of the host platforms. Compatibility will also vary based on the versions of the host program, and of Ignite Pro, which are in use.

1.1. Host Compatibility

The Ignite Pro plugins allow you to access HitFilm effects in a wide range of third party video editors:

- Adobe Premiere Pro CC 2021
- Adobe After Effects CC 2021
- Apple Final Cut Pro X
- Apple Motion 5
- Vegas Pro 18 or 19
- Sony Catalyst Edit 2021
- DaVinci Resolve 17
- NUKE 13
- Grass Valley EDIUS X Pro
- Grass Valley EDIUS X Workgroup
- Avid Media Composer 2021

Since each host includes different capabilities and technologies, plugin functionality and which plugins are available will be different for each host platform. The following chart details exactly which plugins are compatible with each host program.

360° Video

360° Video										
	Adobe AE	Premiere	FCPX	Motion	Resolve	Catalyst	Nuke	Edius	Avid MC	Vegas Pro
360° Animated Lasers	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
360° Blur	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
360° Bulge	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
360° Channel Blur	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
360° Fisheye Converter	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
360° Fisheye Converter	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
360° Glow	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
360° Glow Darks	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

360° Lightsword (2-Point Auto)	✓	X	✓	X	✓	✓	✓	✓	✓	✓
360° Lightsword (4-Point Manual)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
360° Lightsword (Glow Only)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
360° Magnify	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
360° Neon Path	✓	X	X	X	X	X	X	X	X	X
360° Text	X	X	X	✓	✓	✓	✓	✓	✓	✓
360° Twirl	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
360° Unsharpen	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
360° Video Transform	✓	✓	X	✓	✓	✓	✓	✓	✓	✓
360° Viewer	✓	X	X	✓	X	X	X	X	X	X
Blurs										
	Adobe AE	Premiere	FCPX	Motion	Resolve	Catalyst	Nuke	Edius	Avid MC	Vegas Pro
Bilateral Blur	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Diffuse	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Lens Blur	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Motion Blur	✓	✓	✓	✓	X	✓	✓	X	✓	✓
Radial Blur	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Zoom Blur	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Channels										
	Adobe AE	Premiere	FCPX	Motion	Resolve	Catalyst	Nuke	Edius	Avid MC	Vegas Pro
Channel Blur	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Channel Mixer	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Channel Swapper	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Channel Time Shift	✓	✓	✓	✓	X	✓	✓	✓	✓	✓
Chromatic Aberration	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Color Correction										
	Adobe AE	Premiere	FCPX	Motion	Resolve	Catalyst	Nuke	Edius	Avid MC	Vegas Pro
Auto Color	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Auto Contrast	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Auto Levels	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Color Temperature	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Crush Blacks & Whites	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Custom Gray	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Dehaze	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Exposure Pro	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Hotspots	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Pro Skin Retouch	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
White Balance	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Color Grading										
	Adobe AE	Premiere	FCPX	Motion	Resolve	Catalyst	Nuke	Edius	Avid MC	Vegas Pro
Bleach Bypass	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Cine Style	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Color Vibrance	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Day For Night	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Duo Tone	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Grading Transfer	✓	✓	✓	✓	✓	X	✓	X	X	✓
Hue Colorize	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Hue Shift	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
LUT	X	X	✓	✓	✓	X	✓	✓	✓	✓
Shadows & Highlights	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Three Strip Color	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Two Strip Color	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Vibrance	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Vignette	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Vignette Exposure	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Distort										
	Adobe AE	Premiere	FCPX	Motion	Resolve	Catalyst	Nuke	Edius	Avid MC	Vegas Pro
Block Displacement	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Bulge	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Chromenator	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Derezz	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Displacement	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Energy Distortion	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Fluid Distortion	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Heat Distortion	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Insect Vision	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Magnify	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Mosaic	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Puppet	X	X	X	X	X	X	✓	X	X	✓
Smoke Distortion	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Twirl	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Waves	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Witness Protection	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Generate										
	Adobe AE	Premiere	FCPX	Motion	Resolve	Catalyst	Nuke	Edius	Avid MC	Vegas Pro
3D Extrusion	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Animated Lasers	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Audio Spectrum	✓	X	X	X	X	X	X	X	X	X
Audio Waveform	✓	X	X	X	X	X	X	X	X	X
Auto Volumetrics	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Caustics	✓	X	✓	✓	X	X	X	X	X	X
Clone	✓	✓	✓	✓	✓	X	✓	✓	✓	X
Clouds	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Cosmos	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Dimension Rift (Portal)	✓	X	X	X	✓	✓	✓	✓	✓	✓
Distance Field	✓	✓	✓	✓	X	✓	✓	✓	✓	✓
Drop Shadow	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Electro	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
End Credits Crawl	X	X	✓	✓	✓	✓	✓	✓	✓	✓
Fractal Noise	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Grid	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Hyperdrive	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Letterbox	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Lightsword (Glow)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Lightsword (2-Point Auto)	✓	X	X	X	✓	✓	✓	✓	✓	✓
Lightsword (4-Point Manual)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Lightsword Ultra (Glow)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Lightsword Ultra (2-Point Auto)	✓	X	X	X	✓	✓	✓	✓	✓	✓
Lightsword Ultra (4-Point Manual)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Neon Path	✓	X	X	X	X	X	X	X	X	X
Picture in Picture (PiP)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Pond Ripple	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Pulp Sci-Fi Title Crawl	X	X	✓	✓	✓	✓	✓	✓	✓	✓
Radio Waves	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Reflection	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Sphere	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Split Screen Masking	✓	X	✓	✓	X	X	X	X	X	X

Text	X	X	✓	✓	✓	✓	✓	✓	✓	✓
Tile	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Timecode	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Gradients & Fills										
	Adobe AE	Premiere	FCPX	Motion	Resolve	Catalyst	Nuke	Edius	Avid MC	Vegas Pro
4-Point Color Gradient	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Color Gradient	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Radial Gradient	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Grunge										
	Adobe AE	Premiere	FCPX	Motion	Resolve	Catalyst	Nuke	Edius	Avid MC	Vegas Pro
Dot Matrix	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Film Damage	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Film Grain	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Flicker	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Grain	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Half Tone	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Half Tone Color	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Jitter	✓	✓	✓	✓	X	✓	✓	✓	✓	✓
Lens Dirt	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Noise	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Pixel Sort	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Scan Lines	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Shake	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Stutter	✓	✓	✓	✓	X	✓	✓	✓	✓	✓
TV Damage	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Keying										
	Adobe AE	Premiere	FCPX	Motion	Resolve	Catalyst	Nuke	Edius	Avid MC	Vegas Pro
Chroma Key	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Chroma UV Blur	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Color Difference Key	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Demult	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Difference Key	✓	✓	✓	✓	✓	X	✓	X	X	✓
Hue & RGB Key	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Luminance Key	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Remove Stock Background	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Lights & Flares										
	Adobe AE	Premiere	FCPX	Motion	Resolve	Catalyst	Nuke	Edius	Avid MC	Vegas Pro
Auto Light Flares	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Anamorphic Light Flares	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Custom Light Flares	✓	✓	X	✓	X	X	✓	✓	X	✓
Gleam	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Glow	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Inner Glow	✓	✓	✓	✓	X	✓	✓	✓	✓	✓
Light Flares	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Light Leak	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Light Rays	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Light Streaks	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Neon Glow	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Outer Glow	✓	✓	✓	✓	X	✓	✓	✓	✓	✓
Super Glow	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Matte Enhancement										
	Adobe AE	Premiere	FCPX	Motion	Resolve	Catalyst	Nuke	Edius	Avid MC	Vegas Pro
Alpha Brightness & Contrast	✓	✓	✓	✓	X	✓	✓	✓	✓	✓
Crush Blacks & Whites Alpha	✓	✓	✓	✓	X	✓	✓	✓	✓	✓
Erode White	✓	✓	✓	✓	X	✓	✓	✓	✓	✓
Invert Alpha	✓	✓	✓	✓	X	✓	✓	✓	✓	✓
Light Wrap	✓	✓	✓	✓	X	X	✓	X	X	✓
Matte Cleaner	✓	✓	✓	✓	X	✓	✓	✓	✓	✓
Remove Color Matting	✓	✓	✓	✓	X	✓	✓	✓	✓	✓
Set Matte	✓	✓	✓	✓	✓	X	✓	X	X	✓
Spill Removal	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Particles & Simulation										
	Adobe AE	Premiere	FCPX	Motion	Resolve	Catalyst	Nuke	Edius	Avid MC	Vegas Pro
Atomic Particles	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Blood Spray	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Fire	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Gunfire	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Lightning & Electricity	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Rain On Glass	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Shatter	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Scene										
	Adobe AE	Premiere	FCPX	Motion	Resolve	Catalyst	Nuke	Edius	Avid MC	Vegas Pro
Parallax	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Projector	✓	X	X	X	X	X	X	X	X	X
Surface Studio	✓	✓	✓	✓	X	X	✓	X	X	X
Sharpen										
	Adobe AE	Premiere	FCPX	Motion	Resolve	Catalyst	Nuke	Edius	Avid MC	Vegas Pro
Highpass Sharpen	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Stylize										
	Adobe AE	Premiere	FCPX	Motion	Resolve	Catalyst	Nuke	Edius	Avid MC	Vegas Pro
Cartoon	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Emboss	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Find Edges	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Glow Darks	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Leave Color	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Posterize	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Solarize	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Threshold	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Tint	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Temporal										
	Adobe AE	Premiere	FCPX	Motion	Resolve	Catalyst	Nuke	Edius	Avid MC	Vegas Pro
Echo	✓	✓	X	X	X	✓	✓	✓	✓	✓
Motion Trails	✓	✓	X	X	X	✓	✓	X	X	✓
Speed	✓	✓	✓	✓	X	✓	✓	✓	X	✓
Time Displacement	✓	✓	X	X	X	✓	✓	X	X	✓
Time Reverse	✓	✓	✓	✓	X	✓	✓	✓	✓	✓
Video Clean-Up										
	Adobe AE	Premiere	FCPX	Motion	Resolve	Catalyst	Nuke	Edius	Avid MC	Vegas Pro
Clone Stamp	✓	X	✓	✓	X	X	✓	X	X	X
Crop & Pan	✓	X	X	X	X	X	X	X	X	X
Denoise	✓	X	X	X	✓	X	✓	✓	X	✓
Grain Removal	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Rolling Shutter	✓	✓	✓	✓	✓	✓	✓	X	✓	✓
Wire Removal	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Warp										
	Adobe AE	Premiere	FCPX	Motion	Resolve	Catalyst	Nuke	Edius	Avid MC	Vegas Pro
Action Cam Crop	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Action Cam Lens Distort	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Bezier Warp	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

GoPro Lens Reframe	✓	✓	X	X	X	X	✓	X	X	X
Lens Distort	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Page Curl	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Perspective Warp	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Polar Warp	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Quad Warp	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Spherical Warp	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Vortex Displacement Warp	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

2. Visual Effects

Ignite Pro includes an extensive library of effects. Each individual effect is explained in greater detail in this user guide. The specific effects which are installed will vary for each host program, based on the capabilities of the host being used. The plugins can be accessed for use within the Effects panel of the host program.

The Ignite plugins are organized into several categories, based on the general function of the effects:

- [360° Video](#)
- [Blurs](#)
- [Channel](#)
- [Color Correction](#)
- [Color Grading](#)
- [Distort](#)
- [Generate](#)
- [Gradients & Fills](#)
- [Grunge](#)
- [Keying](#)
- [Lights & Flares](#)
- [Matte Enhancement](#)
- [Particles & Simulation](#)
- [Scene](#)
- [Sharpen](#)
- [Stylize](#)
- [Temporal](#)
- [Video Clean-up](#)
- [Warp](#)

2.1. 360° Video

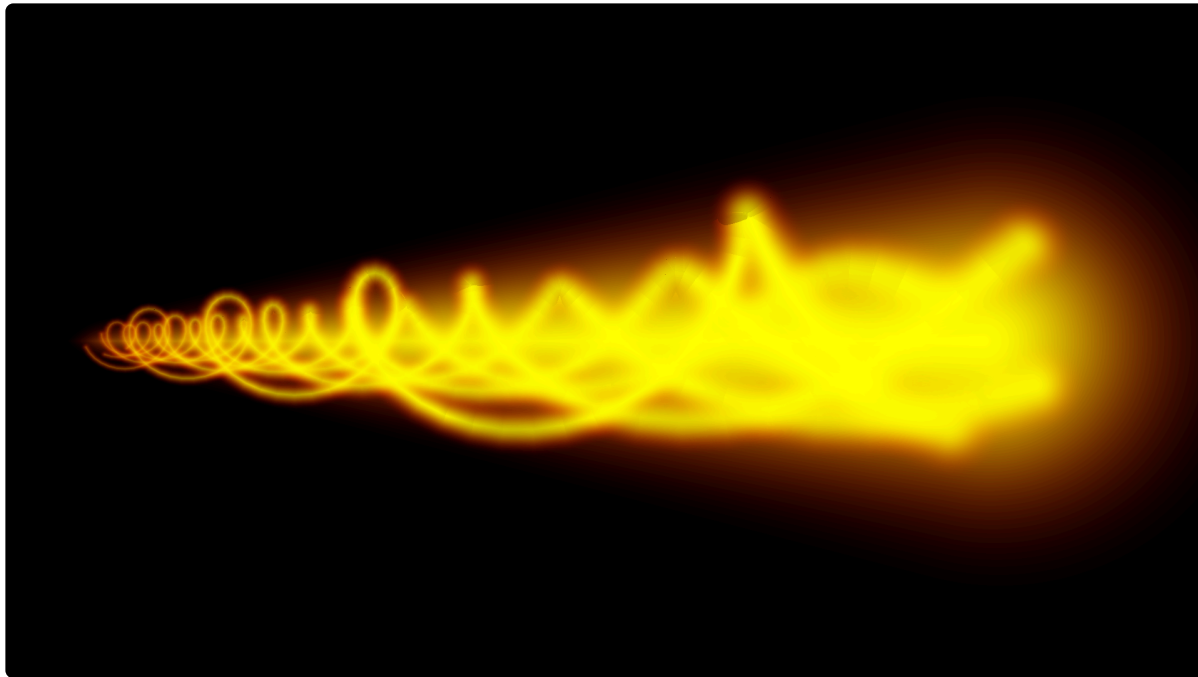
The 360° Video category contains the following tools designed specifically for working with 360° video. Each effect has its own page with full details of the effect and its controls.

- [360° Animated Lasers](#)
- [360° Blur](#)
- [360° Bulge](#)
- [360° Channel Blur](#)
- [360° Fisheye Converter](#)
- [360° Fractal Noise](#)
- [360° Glow](#)
- [360° Glow Darks](#)
- [360° Lightsword \(2-Point Auto\)](#)
- [360° Lightsword \(4-Point Manual\)](#)
- [360° Lightsword \(Glow Only\)](#)
- [360° Magnify](#)
- [360° Neon Path](#)
- [360° Text](#)
- [360° Twirl](#)
- [360° Unsharpen](#)
- [360° Video Transform](#)
- [360° Viewer](#)

2.1.1. 360° Animated Lasers

A customized version of the Animated Lasers effect optimized for use with 360° video. If this effect is applied to normal video, it will look distorted and incorrect.

Designed to create laser bolts which travel from one point to another. The lasers can be constructed from multiple lines, which can be further manipulated into spirals, expanding the effect to also be useful in motion graphics animation.



The laser has two position **points** which define the path along which the laser will travel. These interact with the **Laser Length** and **Location** properties, which define the laser bolt's location between the two points.

- **Start Point:** Sets the origin point of the path along which the laser will travel.
 - **Use Layer:** Select any other layer on the timeline to use its position as the origin of the laser path. A common example is to select a point layer which contains the tracking data for the muzzle of a prop. When a layer is selected, the Position property below functions as an offset from the selected layer's position.
 - **Position:** Defines the location of the point from which the laser originates, on the X axis (horizontal) and Y axis (vertical). When the **Use Layer** option (above) is used, this position value serves as an offset from the position of the selected layer.
 - **Depth:** Adjusts the perspective of the effect along its path. Reduce the depth to make the origin of the laser path appear to be farther away from the camera. Increase the depth to make the origin appear to be closer to the camera.
- **End Point:** Sets the target point toward which the laser will travel.
 - **Use Layer:** Select any other layer on the timeline to use its position as the target of the laser path. When a layer is selected, the Position property below functions as an offset from the

selected layer's position.

- **Position:** Defines the location of the point from which the laser originates, on the X axis (horizontal) and Y axis (vertical). When the **Use Layer** option (above) is used, this position value serves as an offset from the position of the selected layer.
- **Depth:** Adjusts the perspective of the effect along its path. Reduce the depth to make the target position of the laser path appear to be farther away from the camera. Increase the depth to make the target position appear to be closer to the camera.
- **Laser Length:** Defines the length of the laser bolt, in pixels.
- **Location:** Adjusts the position of the laser bolt, along the path from the start point to the end point. Lower values move it closer to the start point, while higher values move it closer to the end point. Keyframing the Location value allows you to animate the laser's movement along the path.
- **Number of Beams:** The effect includes one beam by default, but you can add up to 10 unique beams to build more complex effects. Each beam will have a section of numbered Beam controls below.

Beam 1 (duplicate controls will be listed for each beam number)

- **Core Color:** Choose a color for the laser core. You can use the eyedropper to choose a color from the layer, or click the swatch to open a color picker and choose any color you prefer. You can also manually enter the color values for the red, green, and blue channels.
- **Glow Color:** Choose a color for the laser glow which surrounds the core. Usually the glow should be a richer, more saturated color than the core, but you can choose any color you need. You can use the eyedropper to choose a color from the layer, or click the swatch to open a color picker and choose any color you prefer. You can also manually enter the color values for the red, green, and blue channels.
- **Brightness:** Allows you to reduce the brightness of the beam.
- **Width:** Defines the width of the beam, in pixels.
- **Length:** Defines the length of the beam, as a percentage of the **Laser Length** value. When working with multiple beams, adjusting the relative length of each beam provides a massive amount of control for building complex effects.
- **Position Shift:** Adjusts the position of the beam relative to the **Location** value.
- **Tail Scale:** Sets the width of the tail of the beam, as a percentage of the **Width** value above.
- **Edge Size:** Adjusts the size of the feather applied to the edges.
- **Color Shift:** Adjusts the balance between the core and glow colors. Decreasing the value makes the core color more prominent, while increasing the value introduces more of the glow color.
- **Tail Color Shift:** Adjusts the balance between the core and glow colors in the tail portion of the beam. Decreasing the value makes the core color more prominent, while increasing the value introduces more of the glow color.
- **Brightness Noise:** Breaks up the beam by introducing a noise texture, which makes small random bits of the beam less visible. This can help make it feel more organic.
- **Color Mix Noise:** Breaks up the beam and allows the glow color to show through the core, based on a randomized noise pattern. The **Noise Scale** property in the General controls adjusts the size of the noise used.
- **Beam Blend:** Choose the blend mode used to combine the beam with the underlying layer. The **Noise Scale** property in the General controls adjusts the size of the noise used.
- **Spiral:** Each beam has associated Spiral properties. These are used to twist the beam's straight line

into curving spirals.

- **Radius:** Sets the radius around which the beam is spiraled.
- **Radius Shrink:** Tapers the radius from the start point to the end point.
- **Path Angle:** Increasing this value increases the number of rotations present in the beam.
- **Rotation:** Adjusts the specific rotation of the beam around the path.
- **Rotation Speed:** Animates rotation into the beam, at the speed you choose.

Global Controls

- **Brightness:** Adjusts the overall brightness of the entire effect, including all beams that are present.
- **Rotation:** Rotates the entire effect, made up of the combination of all beams.
- **Rotation Speed:** Animates rotation into the entire combined effect, at the speed you choose.
- **Noise Scale:** Modifies the size of the noise used to break up any beams that include **Brightness Noise** or **Color Mix Noise** settings.

2.1.2. 360° Blur

A standard, fast blur, optimized for use with 360° video.

- **Radius:** Sets the intensity of the blur. The radius, in pixels, defines the area that will be calculated into the blur of each pixel.
- **Iterations:** The number of times the blur is calculated. More iterations give a smoother result, and a larger blur.
- **Dimension:** The blur can be applied Horizontally, Vertically, or Both.
- **Clamp To Edge:** Enabling this feature prevents the blur from expanding outside the edges of the layer it is applied to. Disabling it will allow the blur to expand outside the layer edges.

2.1.3. 360° Bulge

A modified version of the bulge effect, optimized for working with 360° video. Bulge creates the illusion of a bulging shape pushing through the layer.

You can choose from multiple shapes and adjust the size and shape of the bulge.

- **Center:** By default the bulge is centered in the frame, but you can reposition the center if you wish.
 - **Position:** Sets the exact location of the vignette center, using X and Y values.
 - **Use Layer:** Select any other layer on the timeline to use it's position as the center of the vignette. When a layer is selected, the Position property above functions as an offset from the selected layer's position.
- **Bulge:** Adjusts the height of the bulge. Negative values invert the bulge and create a recessed pinch effect.
- **Radius:** Set the overall size of the bulge.
- **Plateau:** You can create a flat area in the center of the bulge. This value sets the radius of that flat area.
- **Wrap:** When the edges of the frame are distorted, especially using negative values, this determines how the blank space created is handled.
 - **None:** The blank areas remain unaffected.
 - **Tile:** An exact copy of the layer is used to fill the blank area.
 - **Reflect:** A mirrored copy of the layer is used to fill the blank area. The mirroring helps hide any seam at the layer's edge.
- **Shape:** The bulge can be created in a variety of geometric shapes.
 - Choose from **Circle**, **Triangle**, **Square**, **Pentagon**, **Hexagon**, **Heptagon**, **Octagon**, **Nonagon**, or **Decagon**.
- **Scale:** Independently adjust the width and height of the bulge.
 - **X:** Adjusts the width of the bulge.
 - **Y:** Adjusts the height of the bulge.

2.1.4. 360° Channel Blur

Blurs color channels individually. Useful for creating the impression of chromatic aberration.



Radius

- **Radius Red:** Sets the radius of the blur on the red channel. A higher radius creates a bigger blur.
- **Radius Green:** Sets the radius of the blur on the green channel. A higher radius creates a bigger blur.
- **Radius Blue:** Sets the radius of the blur on the blue channel. A higher radius creates a bigger blur.
- **Radius Alpha:** Sets the radius of the blur on the alpha channel, which determines the transparency of the image. A higher radius creates a bigger blur.

Dimension

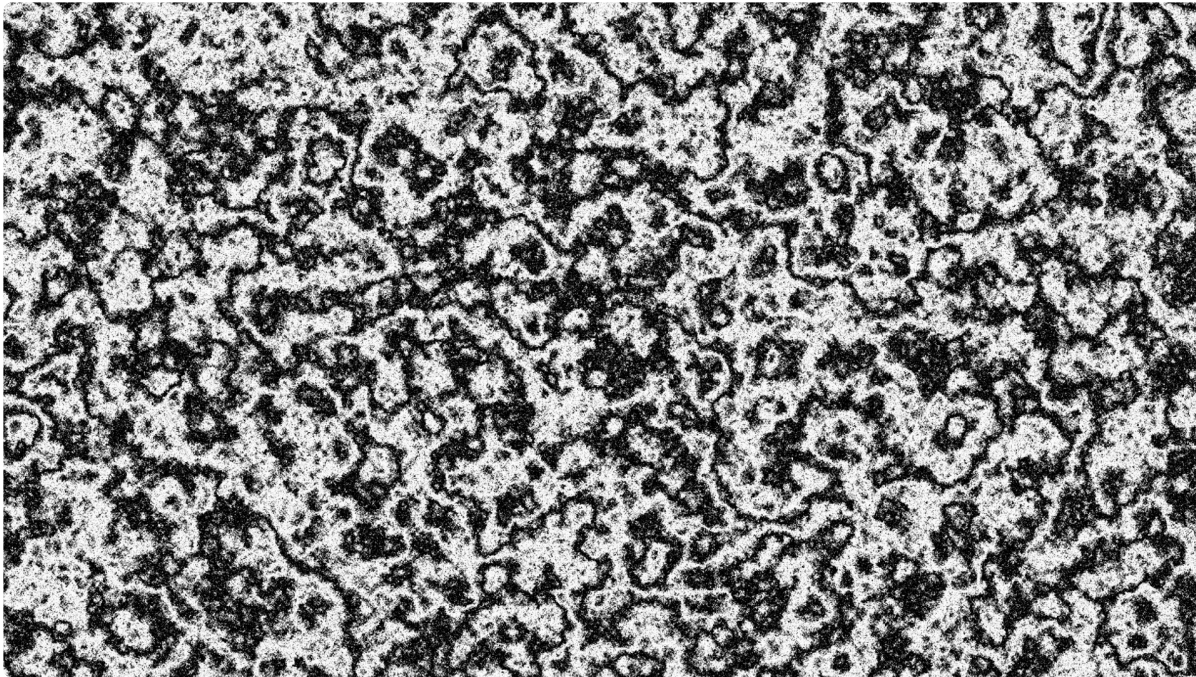
- **Dimension Red:** Select whether the red channel blur is **Horizontal**, **Vertical**, or both **Horizontal and Vertical**.
- **Dimension Green:** Select whether the green channel blur is **Horizontal**, **Vertical**, or both **Horizontal and Vertical**.
- **Dimension Blue:** Select whether the blue channel blur is **Horizontal**, **Vertical**, or both **Horizontal and Vertical**.
- **Dimension Alpha:** Select whether the alpha channel blur is **Horizontal**, **Vertical**, or both **Horizontal and Vertical**.

2.1.5. 360° Fisheye Converter

When working with video captured with two opposing 180° lenses, such as video from the Samsung Gear 360, the 360° Fisheye effect allows you to convert the video into a standard equirectangular format for editing.

2.1.6. 360° Fractal Noise

Generates a range of textures optimized for use with 360° video, using procedural methods.



Each fractal method includes a range of properties for customizing the appearance of the effect.

- **Preset:** Choose from a variety of built-in presets.
- **Seed:** Randomizes the pattern within the style created by the other settings. The seed value can also be keyframed to create movement within the pattern.
- **Type:** Each type uses a different fractal, to give a different appearance to the pattern.
 - **Blob:** Creates a pattern of solid blobs with defined edges.
 - **Clouds:** Creates a pattern of gradual transitions with dithered edges, reminiscent of clouds.
 - **Colored Clouds:** Similar to clouds, but using the entire spectrum of colors.
 - **Emboss:** Uses a pattern similar to clouds, but then applies a height map, creating a stone-like texture.
 - **Marble:** A pattern of randomized fluid lines, giving the appearance of marble.
 - **Swirl:** A variation of clouds where each tone has a linear aspect, so the colors swirl softly together.
 - **Whisp:** Stringy, high contrast pattern.
 - **Wood:** A strong linear pattern reminiscent of wood grain.
 - ***Energy:** * A pattern of thin, energetic strings.
 - **Fluid:** Replicates a pattern similar to the caustics created by looking through a volume of water.
 - **Smoke:** Soft, billowing shapes like the texture of smoke.
- **Interpolation:** Choose the method used to build the texture from the fractal geometry.
 - **Block:** Creates a square, pixelated appearance.
 - **Linear:** Applies more gradual transitions from one block to the next.

- **Cubic:** More dramatic gradients completely obscure the block pattern to create organic shapes.

Transform

- **Position:** Moves the origin point of the fractal pattern, thereby shifting the entire pattern by the value selected.
- **Use Layer:** Allows you to select another timeline layer, to parent the fractal noise to its position data. When a layer is selected, the Position values above function as an offset from the parent layer.
- **Rotation:** Rotates the pattern around the origin point.
- **Scale:** Adjusts the size of the fractal pattern.
- **Axis Scale:** Allows you to scale the pattern on a single axis.
 - **X:** Scales the width of the pattern without affecting the height.
 - **Y:** Scales the height of the pattern, without affecting the width.

Sub Settings

The sub settings affect the additional iterations of the fractal which are used to break up the primary fractal and create the finer details.

- **Sub Levels:** Sets the number of sub levels which will be applied.
- **Influence:** Adjusts the balance of the original fractal and the sub levels. Values below 50% favor the original, and values above 50% favor the sub levels.
- **Scale:** Adjusts the size of the sub levels, without altering the original.
- **Rotation:** Rotates the sub levels, without rotating the original.
- **Offset:** Adjusts the position of the sub levels without altering the original.
- **Center Subscale:** Enabling this option precisely aligns the noise used for each sub scale with the primary fractal. Disabling it randomly positions each subscale noise, for more random results.

Appearance

- **Color 1:** Controls for the first color used to generate the fractal pattern.
 - **Color:** You can use the eyedropper to choose a color from the viewer, or click the swatch to open a color picker and choose any color you prefer. You can also manually enter the color values for the red, green, and blue channels.
 - **Opacity:** Adjusts the transparency of areas of the fractal pattern filled with the first color.
- **Color 2:** Controls for the second color used to generate the fractal pattern.
 - **Color:** You can use the eyedropper to choose a color from the viewer, or click the swatch to open a color picker and choose any color you prefer. You can also manually enter the color values for the red, green, and blue channels.
 - **Opacity:** Adjusts the transparency of areas of the fractal pattern filled with the second color.
- **Exposure:** Adjusts the exposure of the fractal effect. The intensity of the results correspond directly to the to the brightness of the original colors, so bright areas are affected more strongly than dark areas. Positive values brighten the effect, and negative values darken it.
- **Offset:** Shifts the entire range of tonal values up or down. Values shifted beyond pure black or pure white will be clipped.

- **Blend:** Controls how the effect is combined with the contents of the layer it is applied to.

2.1.7. 360° Glow

Adds a glowing aura to bright areas of the layer, optimized for use with 360° video.

Per Channel Intensity properties enable you to shift the glow color.

Advanced options provide further customization of the glow's appearance, including creating a specific color gradient.



2.1.8. 360° Glow Darks

Adds a diffuse, glowing aura to dark areas of the layer, optimized for use with 360° video.

Size and intensity of the blur can be edited with the included controls. Per Channel Intensity properties enable you to shift the glow color.

2.1.9. 360° Lightswords (2-Point Auto)

A 2-Point Lightsword effect optimized for use with 360° video. If this effect is applied to normal video, it will look distorted and incorrect.

The effect requires the placing of two points in the frame, one at the hilt and one at the tip of the prop blade. Once these points are rotoscoped to the movement of the lightsword blade, the plugin will automatically calculate the appropriate motion blur based on the speed at which the blade is moving, and the path interpolation settings you choose.

Hilt

- **Position Menu:** The hilt position can be linked to another layer via the Position menu. Use the menu to select any other layer on your timeline, to apply the selected layer's position to the Hilt point. When a layer is selected, the Position values below serve as an offset from the selected layer's position.
- **Position:** The hilt position can be manually specified, using X (horizontal) and Y (vertical) values. When a layer is selected, these Position values serve as an offset from the selected layer's position.
- **Width:** Sets the width of the lightsaber core at the hilt. The width of the hilt and tip can be set separately, which is useful for creating perspective on the blade or creating tapered shapes.

Tip

- **Position Menu:** The tip position can be linked to another layer via the Position menu. Use the menu to select any other layer on your timeline, to apply the selected layer's position to the Hilt point. When a layer is selected, the Position values below serve as an offset from the selected layer's position.
- **Position:** The tip position can be manually specified, using X (horizontal) and Y (vertical) values. When a layer is selected, these Position values serve as an offset from the selected layer's position.
- **Width:** Sets the width of the lightsaber core at the tip. The width of the hilt and tip can be set separately, which is useful for creating perspective on the blade or creating tapered shapes.

Extension

- **Extension:** Sets the length of the blade, as a percentage of the distance from the hilt to the tip. The lightsword extension can be keyframed to create the 'ignition' animation, whereby the lightsword blade extends out of the hilt, or contracts back in.

Core

The core is the central part of the effect which directly covers the prop blade.

- **Width:** The Width of the core can be adjusted, as a percentage of the width values set in the Tip and Hilt controls above. This control allows you to adjust the overall width with a single control, while retaining any taper created by the separate width values used in the hilt and tip controls.
- **Color:** Choose a color for the core. The core Color should generally be set slightly off white, in the

direction of the color that will be used for the glow. You can use the eyedropper to choose a color from the layer, or click the swatch to open a color picker and choose any color you prefer. You can also manually enter the color values for the red, green, and blue channels.

- **Feather:** Adjusts the softness of the core's edges.
- **Stability:** Lowering the Stability causes the core shape to fluctuate in size, making the blade appear unstable.
- **Mask:** Control whether masks applied to the layer affect the glow.
 - **Disable:** Allows the glow to naturally wrap around the mask edges, for a softer result. This option is best when the object being masked is very near the lightsword blade
 - **Enable:** Cuts the glow off exactly at the edge of the mask. Masks should generally be enabled when there is a significant distance between the object being masked and the lightsword blade.
 - **Invert:** Reveals the glow outside the mask, while removing it inside.

Inner Glow

Two glows are built-in to the effect. Varying the width of the inner and outer glows allows you to layer the glow and create a more natural falloff around the edges of the effect. The inner glow is controlled here, and the outer glow controls are found below.

- **Width:** Adjusts the overall width of the inner glow, in pixels.
- **Color:** Choose a color for the inner glow. The inner glow color should generally be set to a bright, highly saturated color. You can use the eyedropper to choose a color from the layer, or click the swatch to open a color picker and choose any color you prefer. You can also manually enter the color values for the red, green, and blue channels.
- **Alpha:** Adjusts the opacity of the inner glow.
- **Stability:** Lowering the stability causes the inner glow to fluctuate in size, making the blade appear unstable.
- **Flicker:** Sets the intensity of the flicker applied to the glow's brightness. This does not alter the shape of the glow.

Outer Glow

Two glows are built-in to the effect. Varying the width of the inner and outer glows allows you to layer the glow and create a more natural falloff around the edges of the effect. The outer glow is controlled here, and the inner glow controls are found above.

- **Width:** Adjusts the overall width of the inner glow, in pixels.
- **Color:** Choose a color for the inner glow. The outer glow color can be set to a similar color to the inner glow color, for a traditional look, or to an entirely different color to create a gradient in the glow. You can use the eyedropper to choose a color from the layer, or click the swatch to open a color picker and choose any color you prefer. You can also manually enter the color values for the red, green, and blue channels.
- **Alpha:** Adjusts the opacity of the inner glow.

Path interpolation

During rapid movement motion blur should cause the hilt and tip to fan out, creating a motion trail. Path interpolation is used to create a natural curve along the hilt and tip ends.

- **Scale:** Reducing the scale to zero will remove all path interpolation, resulting in straight lines drawn at the hilt and tip ends of the blade. Increasing the scale will create path interpolation and curve the ends.
- **Hilt:** When the blade is swinging toward or away from the camera, you can adjust the Hilt angle to correspond to the movement of the prop's hilt, and get accurate motion simulation.
- **Tip:** When the blade is swinging toward or away from the camera, you can adjust the Tip angle to correspond to the movement of the prop's tip, and get accurate motion simulation.
- **Motion Persistence:** Ignite Pro automatically attempts to create a natural trail shape based on the movement of the hilt and tip points, based on the expected behavior of a blade in motion. The duration of the trail is determined by the motion persistence. Increasing the value will cause the trail to remain visible for more frames, thus creating a larger trail. Reducing the value will create a smaller trail.
 - Note that motion persistence is restricted by the Auto Scale Persistence properties, if Auto Scale is activated (see below).
- **Persistence Shift:** Shifts the position of the motion blur in relation to the exact hilt and tip locations. This adjusts the trail to be either in front (1.0), behind (0.0) or in the middle (0.5) of the control point positions. At the default of 0.0 this means that on frames containing fast moving blades you should position the control points on the leading edges of the blade.

Auto Scale Persistence

Auto Scale provides additional control over the generation of the persistence trail, determining when the trail is generated. These settings can be used to match the trail to the natural motion blur found in your footage, which may vary depending on your camera settings.

- **Auto Scale:** Choose how the scale persistence is calculated.
 - **Enable:** Uses the thresholds below to calculate the motion persistence.
 - **Disable:** Uses only the Motion Persistence property. Therefore the trail will always be generated even during small movements. A high Motion Persistence value combined with Auto Scale turned off will create a long, unnatural trail. Increasing the motion persistence over 180 can create extreme streaking. This isn't suitable for lightsabers but can be an interesting effect in its own right.
- **Speed Threshold:** Used to restrict the activation of motion persistence. Below the specified threshold, the lightsword shape will be drawn without any trail. This ensures that the blade does not look indistinct when it is moving slowly. As soon as the speed threshold is exceeded, the trail will be generated according to the motion persistence setting.
- **Swing Threshold:** Used to restrict the activation of motion persistence. Below the specified threshold, the lightsword shape will be drawn without any trail. This ensures that the blade does not look indistinct when it is moving slowly. As soon as the swing threshold is exceeded, the trail will be

generated according to the motion persistence setting.

- **Minimum Persistence:** Determines how much motion trail is generated on frames where the speed and swing thresholds are not met. Setting this to 0.0 ensures the blade shape is defined solely by the core, hilt and tip properties. Raising the value will generate a blur trail even during minor movements.

Distortion

Distortion not only alters the edges of the core, to make them more irregular, but distorts the background layer where it is visible through the glow. If Distortion is reduced to 0 the edge will be regular and smooth.

- **Distortion:** Determine how irregular the edge of the core is. Lower values give a smoother, more refined effect. Higher values will make the edge irregular, and increasingly distort the background behind the glow of the effect. This can help to make the effect feel more convincing, as part of the scene.
- **Blend:** Choose the blend mode that is used to composite the effect onto the underlying layers.

2.1.10. 360° Lightsword (4-Point Manual)

A 4-Point Lightsword effect optimized for use with 360° video. If this effect is applied to normal video, it will look distorted and incorrect.

The effect provides precise control over the lightsword shape by using four control points, two at the hilt and two at the tip of the prop blade. This allows you to precisely match the shape to the motion blur of the prop blade created by the camera. Both ends of the effect will be curved based on their motion and the Path Interpolation settings you have selected, to create a natural shape for the moving blade.

Hilt

- **Position 1 Menu:** The left hilt corner. Hilt position 1 can be linked to another layer via the Position menu. Use the menu to select any other layer on your timeline, to apply the selected layer's position to the Hilt point. When a layer is selected, the Position values below serve as an offset from the selected layer's position.
- **Position 1:** The left hilt corner. Hilt position 1 can be manually specified, using X (horizontal) and Y (vertical) values. When a layer is selected, these Position values serve as an offset from the selected layer's position.
- **Position 2 Menu:** The right hilt corner. Hilt position 2 can be linked to another layer via the Position menu. Use the menu to select any other layer on your timeline, to apply the selected layer's position to the Hilt point. When a layer is selected, the Position values below serve as an offset from the selected layer's position.
- **Position 2:** The right hilt corner. Hilt position 2 can be manually specified, using X (horizontal) and Y (vertical) values. When a layer is selected, these Position values serve as an offset from the selected layer's position.
- **Width:** Sets the width of the lightsaber core at the hilt. The width of the hilt and tip can be set separately, which is useful for creating perspective on the blade or creating tapered shapes.

Tip

- **Position 1 Menu:** The left tip corner. Tip position 1 can be linked to another layer via the Position menu. Use the menu to select any other layer on your timeline, to apply the selected layer's position to the Hilt point. When a layer is selected, the Position values below serve as an offset from the selected layer's position.
- **Position 1:** The left tip corner. Tip position 1 can be manually specified, using X (horizontal) and Y (vertical) values. When a layer is selected, these Position values serve as an offset from the selected layer's position.
- **Position 2 Menu:** The right tip corner. Tip position 2 can be linked to another layer via the Position menu. Use the menu to select any other layer on your timeline, to apply the selected layer's position to the Hilt point. When a layer is selected, the Position values below serve as an offset from the selected layer's position.
- **Position 2:** The right tip corner. Tip position 2 can be manually specified, using X (horizontal) and Y (vertical) values. When a layer is selected, these Position values serve as an offset from the selected

layer's position.

- **Width:** Sets the width of the lightsaber core at the tip. The width of the hilt and tip can be set separately, which is useful for creating perspective on the blade or creating tapered shapes.

Extension

- **Extension:** Sets the length of the blade, as a percentage of the distance from the hilt to the tip. The lightsword extension can be keyframed to create the 'ignition' animation, whereby the lightsword blade extends out of the hilt, or contracts back in.

Core

The core is the central part of the effect which directly covers the prop blade. Normally it is the brightest component of the effect.

- **Width:** The Width of the core can be adjusted, as a percentage of the width values set in the Tip and Hilt controls above. This control allows you to adjust the overall width with a single control, while retaining any taper created by the separate width values used in the hilt and tip controls.
- **Color:** Choose a color for the core. The core Color should generally be set slightly off white, in the direction of the color that will be used for the glow. You can use the eyedropper to choose a color from the layer, or click the swatch to open a color picker and choose any color you prefer. You can also manually enter the color values for the red, green, and blue channels.
- **Feather:** Adjusts the softness of the core's edges.
- **Stability:** Lowering the Stability causes the core shape to fluctuate in size, making the blade appear unstable.
- **Mask:** Control whether masks applied to the layer affect the glow.
 - **Disable:** Allows the glow to naturally wrap around the mask edges, for a softer result. This option is best when the object being masked is very near the lightsword blade
 - **Enable:** Cuts the glow off exactly at the edge of the mask. Masks should generally be enabled when there is a significant distance between the object being masked and the lightsword blade.
 - **Invert:** Reveals the glow outside the mask, while removing it inside.

Inner Glow

Two glows are built-in to the effect. Varying the width of the inner and outer glows allows you to layer the glow and create a more natural falloff around the edges of the effect. The inner glow is controlled here, and the outer glow controls are found below.

- **Width:** Adjusts the overall width of the inner glow, in pixels.
- **Color:** Choose a color for the inner glow. The inner glow color should generally be set to a bright, highly saturated color. You can use the eyedropper to choose a color from the layer, or click the swatch to open a color picker and choose any color you prefer. You can also manually enter the color values for the red, green, and blue channels.
- **Alpha:** Adjusts the opacity of the inner glow.
- **Stability:** Lowering the stability causes the inner glow to fluctuate in size, making the blade appear

unstable.

- **Flicker:** Sets the intensity of the flicker applied to the glow's brightness. This does not alter the shape of the glow.

Outer Glow

Two glows are built-in to the effect. Varying the width of the inner and outer glows allows you to layer the glow and create a more natural falloff around the edges of the effect. The outer glow is controlled here, and the inner glow controls are found above.

- **Width:** Adjusts the overall width of the inner glow, in pixels.
- **Color:** Choose a color for the inner glow. The outer glow color can be set to a similar color to the inner glow color, for a traditional look, or to an entirely different color to create a gradient in the glow. You can use the eyedropper to choose a color from the layer, or click the swatch to open a color picker and choose any color you prefer. You can also manually enter the color values for the red, green, and blue channels.
- **Alpha:** Adjusts the opacity of the inner glow.

Path interpolation

During rapid movement motion blur should cause the hilt and tip to fan out, creating a motion trail. Path interpolation is used to create a natural curve along the hilt and tip ends.

- **Scale:** Reducing the scale to zero will remove all path interpolation, resulting in straight lines drawn at the hilt and tip ends of the blade. Increasing the scale will create path interpolation and curve the ends.
- **Hilt 1:** When the blade is swinging toward or away from the camera, you can adjust the Hilt angle to correspond to the movement of the prop's hilt, and get accurate motion simulation.
- **Hilt 2:** When the blade is swinging toward or away from the camera, you can adjust the Hilt angle to correspond to the movement of the prop's hilt, and get accurate motion simulation.
- **Tip 1:** When the blade is swinging toward or away from the camera, you can adjust the Tip angle to correspond to the movement of the prop's tip, and get accurate motion simulation.
- **Tip 2:** When the blade is swinging toward or away from the camera, you can adjust the Tip angle to correspond to the movement of the prop's tip, and get accurate motion simulation.

Distortion

Distortion not only alters the edges of the core, to make them more irregular, but distorts the background layer where it is visible through the glow. If Distortion is reduced to 0 the edge will be regular and smooth.

- **Distortion:** Determine how irregular the edge of the core is. Lower values give a smoother, more refined effect. Higher values will make the edge irregular, and increasingly distort the background behind the glow of the effect. This can help to make the effect feel more convincing, as part of the scene.
- **Blend:** Choose the blend mode that is used to composite the effect onto the underlying layers.

2.1.11. 360° Lightswords (Glow Only)

A version of the Lightsword Glow effect optimized for use with 360° video. If this effect is applied to normal video, it will look distorted and incorrect.

The effect allows you to create an external glow to any layer's shape. You can use masks to define or animate a layer's shape, then add a glow around the outside of that shape. This technique is commonly used to create the lightsword core using a masked plane, then multiple Lightsword (Glow Only) effects can be added to create a rich, complex glow.

Inner Glow

Two glows are built-in to the effect. Varying the width of the inner and outer glows allows you to layer the glow and create a more natural falloff around the edges of the effect. The inner glow is controlled here, and the outer glow controls are found below.

- **Width:** Adjusts the overall width of the inner glow, in pixels.
- **Color:** Choose a color for the inner glow. The inner glow color should generally be set to a bright, highly saturated color. You can use the eyedropper to choose a color from the layer, or click the swatch to open a color picker and choose any color you prefer. You can also manually enter the color values for the red, green, and blue channels.
- **Alpha:** Adjusts the opacity of the inner glow.
- **Stability:** Lowering the stability causes the inner glow to fluctuate in size, making the blade appear unstable.
- **Flicker:** Sets the intensity of the flicker applied to the glow's brightness. This does not alter the shape of the glow.

Outer Glow

Two glows are built-in to the effect. Varying the width of the inner and outer glows allows you to layer the glow and create a more natural falloff around the edges of the effect. The outer glow is controlled here, and the inner glow controls are found above.

- **Width:** Adjusts the overall width of the inner glow, in pixels.
- **Color:** Choose a color for the inner glow. The outer glow color can be set to a similar color to the inner glow color, for a traditional look, or to an entirely different color to create a gradient in the glow. You can use the eyedropper to choose a color from the layer, or click the swatch to open a color picker and choose any color you prefer. You can also manually enter the color values for the red, green, and blue channels.
- **Alpha:** Adjusts the opacity of the inner glow.

Distortion

Distortion not only alters the edges of the core, to make them more irregular, but distorts the background

layer where it is visible through the glow. If Distortion is reduced to 0 the edge will be regular and smooth.

- **Distortion:** Determine how irregular the edge of the core is. Lower values give a smoother, more refined effect. Higher values will make the edge irregular, and increasingly distort the background behind the glow of the effect. This can help to make the effect feel more convincing, as part of the scene.
- **Blend:** Choose the blend mode that is used to composite the effect onto the underlying layers.

2.1.12. 360° Magnify

A Magnify effect optimized for use with 360° video. If this effect is applied to normal video, it will look distorted and incorrect.

Zooms in on a specific area of the layer. The shape, size and position of the magnification can all be changed.



- **Center:** By default the magnification is centered in the frame, but you can reposition the center if you wish.
 - **Position:** Sets the exact location of the magnification center, using X and Y values.
 - **Use Layer:** Select any other layer on the timeline to use it's position as the center of the magnification. When a layer is selected, the Position property above functions as an offset from the selected layer's position.
- **Radius:** Sets the radius, in pixels, of the magnified area.
- **Magnification:** Adjusts the amount of magnification applied within the radius.
- **Bulge:** Controls the amount of bulge distortion applied within the radius. Higher bulge values reduce the distortion at the edges of the magnified area.
- **Wrap:** When the edges of the frame are distorted, wrap determines how the blank space created is handled.
 - **No:** The blank areas remain unaffected.
 - **Tile:** An exact copy of the layer is used to fill the blank area.
 - **Reflect:** A mirrored copy of the layer is used to fill the blank area.
- **Shape:** Select the shape to be used for the bulge.
 - Choose between **Circle**, **Triangle**, **Square**, **Pentagon**, **Hexagon**, **Heptagon**, **Octagon**, **Nonagon**, or **Decagon**.
- **Blend:** Choose the blend mode used to apply the effect to the underlying layer.

Shape

When a shape other than Circle is selected in the Shape menu, additional controls will be displayed to provide further control over the shape.

- **Rotation:** Turn the knob to rotate the magnified shape.
- **Curvature:** Adds a curve to each edge of the shape. Negative values curve inward, and positive values curve outward.
- **Pinch:** Adjusts the weighting of the curvature.
- **Shift:** Rotates the curvature without moving the shape itself, to shift how the edges are curved.

2.1.13. 360° Neon Path

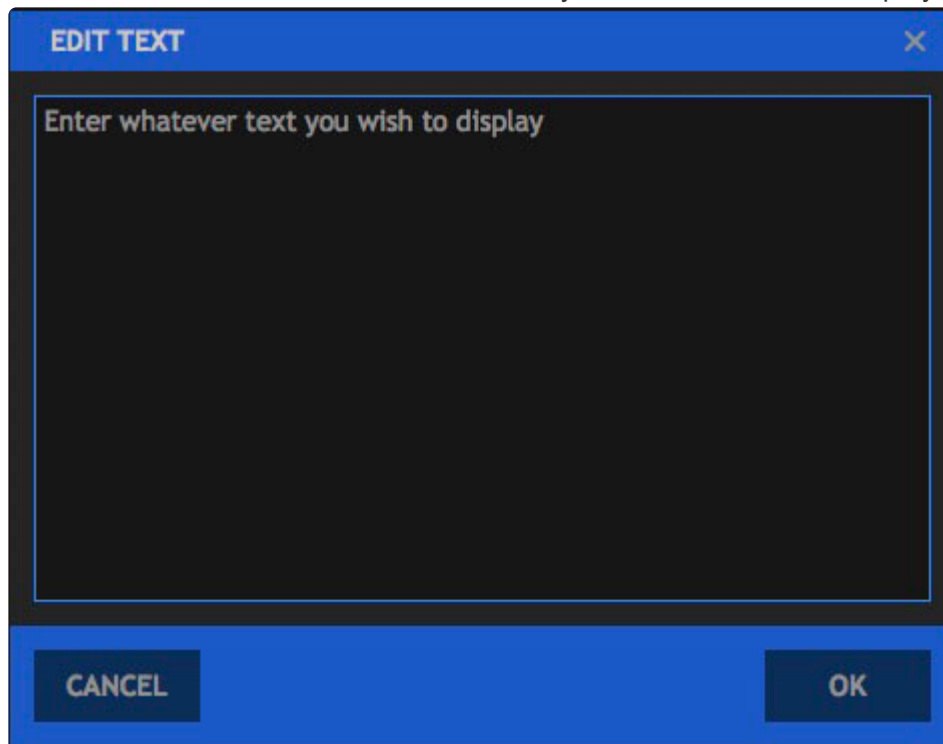
A useful tool for creating animated Neon Path effects. You can use a Text Layer or a Mask to define the shape of the effect, and then control the position and movement of the Neon line on the selected path.

2.1.14. 360° Text

Creates text with unwrapped spherical distortion, for use with 360° video.

The Text effect lets you quickly generate text on any timeline. To add Text, drag the Text effect from the Effects panel onto a Plane, an image, or a video clip, to add text to that object. Open the controls for the effect in the Controls panel, and then click the A icon displayed to the right of the Text property. This will open the Edit Text dialog, where you can enter the text you wish to add to the layer. Once you are finished editing the text, click the OK button to close the Edit Text dialog and apply the changes. You can then edit the text and further customize the effect in the Controls panel, or directly on the timeline when working in a composite shot.

- **Text:** This is where you edit the contents of the Text effect. Click the “A” icon to open the Edit Text window. You can then enter whatever text you wish the effect to display.



- **Cancel:** discards any changes you have entered and closes the Edit Text window.
- **OK:** Confirms the text you have entered and closes the Edit Text window. Once the window closes, the text will be updated on the viewer.

Transform

You can control the alignment and positioning of the Text effect through these controls.

- **Offset From:** Select the position from which the layer movement will be measured. By default the text is Centered, but you can also place it in the Bottom Left, Bottom, Bottom Right, Left, Right, Top Left, Top, or Top Right.
- **Position Offset:** Sets the distance, in pixels, which the layer is moved from the default position

selected in the Offset From menu.

- **Rotation:** Sets the rotation of the layer, in degrees.

Format

The Format controls allow you to set the details of the text style for the effect.

- **Font:** Select the font to be used, from a list of all fonts installed on your computer.
- **Style:** If your selected font includes different styles (Bold, Light, Italic, etc.), you can select your desired style here.
- **Alignment:** The text alignment can be adjusted here. You can align the text to Left, Center, or Right, or Justify the text to keep both sides aligned
- **Color:** Allows you to select a font color.
- **Opacity:** Sets the transparency of the Text, from completely invisible at 0.00 to completely opaque at 1.00.
- **Font Size:** Sets the size of your text. In general, if you want to enlarge your text, it is better to increase the font size rather than increase the layer Scale above 100%.
- **Line Spacing:** Defines the vertical spacing between each line of text.
- **Enable Word Wrap:** Toggles word wrap on and off. Enabling word wrap means that as soon as the text gets too long to fit in a single line, a line break will be created automatically, and a new line is started automatically.
- **Word Wrap Width:** Defines the width at which word wrap will be implemented. You can create margins in your text layer by setting the Word Wrap Width to a smaller value than the width of the layer the text effect is applied to. For example, if your text is applied to a Full HD layer that is 1920 pixels wide, and you set the Word Wrap Width to 1800, the 120 pixels that remain will be split to create a 60 pixel wide margin on each side of the layer.
- **Blend:** Determines how the Text is blended with the layer it is applied to. None will prevent the layer from being displayed at all, so only the text is visible. Normal displays the text over the top of the layer, so both are visible. Details on all the other Blend Mode options can be found on the page about Compositing With Blend Modes.
- **Motion Blur:** Sets the amount of motion blur applied to the layer when its position is animated.

2.1.15. 360° Twirl

A customized Twirl effect designed for use with 360° video. If this effect is applied to standard video, it will look distorted and incorrect.

Twists the layer around the effect's center point. The center point stays in place, while the pixels at the edge of the radius are distorted by the angle you choose.



- **Angle:** Sets the number of degrees by which the area inside the radius will be rotated.
- **Center:** By default the twirl is centered in the frame, but you can reposition the center if you wish.
 - **Position:** Sets the exact location of the effect center, using X and Y values.
 - **Use Layer:** Select any other layer on the timeline to use its position as the center of the effect. When a layer is selected, the Position property above functions as an offset from the selected layer's position.
- **Radius:** Determines the distance from the center point to which the distortion will extend.
- **Wrap:** Controls how the distortion will be wrapped when it reaches the edge of the frame.
 - **No:** No wrapping is applied.
 - **Tiled:** A second identical copy of the image is used alongside the original to fill the wrapped area.
 - **Reflection:** A mirrored copy is used alongside the original to fill the wrapped area.

2.1.16. 360° Unsharpen

A tool for bringing out or improving fine detail in a 360° video layer.

2.1.17. 360° Video Transform

On 360° video, this can be applied to adjust the position of the video layer without losing its wraparound appearance. It can also be used effectively on wraparound environment maps.

Applying this to an ordinary layer will create distorted, unusual results.

2.1.18. 360° Viewer

Apply this effect to a 360° video layer to wrap the layer onto a spherical shape for viewing. This wraps the selected layer onto a spherical shape.

When placed as the bottom layer in a 3D composite shot, this creates a convincing, wrap-around background for 3D shots. Examples would be a sky background for a cityscape or plane shot, or a space nebula for a spaceship fly-by.

The 360° viewer will automatically update as the camera is panned in all directions.

2.2. Blurs

The Blurs folder contains the following blur-related effects. Each effect has its own page where you can find full details of the effect and its controls.

- [Bilateral Blur](#)
- [Diffuse](#)
- [Lens Blur \[Layer Only\]](#)
- [Motion Blur](#)
- [Radial Blur](#)
- [Zoom Blur](#)



Some blurs include a **Clamp to Edge** property, which ensures that the effect extends to the edge of the frame.

2.2.1. Bilateral Blur

Smooths images for a softer, untextured appearance, while retaining fine edge detail.



- **Radius:** Sets the intensity of the blur. The radius, in pixels, defines the area that will be calculated into the blur of each pixel.
- **Threshold:** Sets the amount of edge contrast that must be present for an edge to be retained. Higher values will result in fewer edges being held out from the blur.
- **Dimension:** The blur can be applied Horizontally, Vertically, or Both.

2.2.2. Diffuse

Creates a soft focus appearance by duplicating the footage, blurring the copy, and then blending the duplicate back onto the original footage.



- **Radius:** Sets the intensity of the blur. The radius, in pixels, defines the area that will be calculated into the blur of each pixel.
- **Opacity:** Controls the opacity of the duplicate blurred footage. Lower opacity levels will give a more subtle result.

2.2.3. Lens Blur

The lens blur is designed to more closely mimic the depth of field bokeh effects created by real lenses. It can be used in conjunction with a depth map to selectively blur different areas of the frame to different degrees.

Here's an example of lens blur in action, followed by the original frame without blur:



Note how the face remains in sharp focus while the rest of the image becomes progressively more blurred.

This is based upon a simple depth map created by hand:



The circle at the top keeps the face in focus, while the left-to-right gradient oval causes her arm to become progressively more blurred. The rest of the image, being black, is fully blurred.

Lens blur can be heavily customized.

- **Source Layer:** Can be optionally used to apply a depth map, as shown in the example above.
- **Source Channel:** You can use various channels from the source layer as the depth map, such as luminance and alpha.
- **Radius:** adjusts the strength of the blur.
- **Focal Distance:** Is used to rack focus based on the depth map, adjusting which point on the map is in focus. This is analogous to changing focus on your camera.
- **Focal Range:** Defines the depth of field. A larger focal range will cause more of the frame to remain in focus, while a small focal range will cause a shallower area to remain in focus.
- **Specular Threshold:** Sets the luminance level above which highlights will be blown out to white, rendering as specular highlights based on the Iris settings below.
- **Specular Brightness:** Sets the brightness of the specular highlights. Lower threshold and higher brightness will make the bokeh more obvious. The bokeh shape can be further customized in the Iris section.
- **Quality:** Defines the visual quality of the blur. If you are trying to match your footage to other footage shot with a lower quality lens, reducing the quality may help. Reducing quality also allows the effect to render more quickly.
- **Iris:** The iris section can be used to switch between multiple primitive shapes. These can then be rotated and warped using the curvature, pinch and shift options to create custom shapes. The **View Iris** option can be useful for dialing in the shape of the iris.
 - **Shape:** Select a shape based on the number of blades you wish to be used for the iris. More

blades tend to give a smoother blur and higher quality results.

- **Rotation:** Sets the rotation of the shape selected above.
- **Curvature:** Sets the curvature of each blade of the iris. A value of 0.0 creates a straight side. Negative values will curve the sides inward, while positive values curve it outward.
- **Pinch:** Limits the area affected by the curvature. Higher pinch levels will reduce the width of the curve, so it is pinched close to the vertices of the iris shape.
- **Shift:** Offsets the center of the curvature.
- **Opacity Curve:** Feathers the edges of the iris shape, from the outer edge and the center.
- **Highlight Location:** Sets the distance of the circular highlight from the center of the iris.
- **View Iris:** Enabling this option shows the iris shape in white, so you can see exactly how the adjustments above affect the shape that will be used to render the specular highlights.

2.2.4. Motion Blur

Motion Blur uses optical flow techniques to identify movement in the contents of a layer and apply artificial motion blur based on the distance specific features travel from one frame to the next. This can be very useful for animation or for adding exaggerated motion blur to a live action shot.



- **Mode:** Choose the method used to calculate the blur.
 - **Off:*** disables the blur entirely.
 - **Comp Settings:*** Uses the same settings used by the composite shot, which are found in the Advanced tab of the composite shot Properties. This allows the motion blur to exactly match

any 3D motion blur created by animation within the composite shot.

- **Custom:** Allows you to manually specify the settings used for the effect. If you select Custom, the following settings will become available.
- **Shutter Angle:** A larger shutter angle will create more motion blur. The shutter angle simulates the amount of time a real camera shutter is open.
- **Shutter Phase:** Positions the blur in relation to the moving object. This can be used to offset the blur in front or behind the object. For realistic motion blur this is best kept to half the value of the shutter angle.
- **Samples:** Motion blur is constructed by sampling the position of the layer over multiple frames. A higher number of samples will result in a higher quality motion blur. Fewer samples will be faster to render but may introduce visible banding in the motion blur.

Optical Flow

Motion blur is calculated by tracking the movement of every pixel in the image using optical flow techniques. The amount of blur applied to each pixel is based on the speed at which it is moving. These advanced settings let you adjust how the movement in the frame is tracked.

- **Window Size:** The number of pixels surrounding the current pixel that is scanned to calculate the motion of the current pixel.
- **Sigma:** A value in the algorithm used for tracking, that alters the way it tracks. Changing the Sigma can affect the result. If the blur is calculated incorrectly, trial and error can be used to see if changing sigma improves results.
- **Iterations:** The number of times the tracking algorithm is performed. The results of all iterations are averaged, so more iterations will give a more accurate result, but will also take longer to calculate.
- **Downsamples:** Optical Flow can only track movement smaller than one pixel, so before the tracking algorithm runs, the image must be downsampled. You can create multiple levels of downsampling, and the algorithm will be calculated for each downsample level. More downsamples can improve the results, but will take longer to calculate.
- **Start Downsample:** By default the tracking algorithm starts with the first downsample, skipping the full resolution image, which makes it less susceptible to being misled by noise in the image. Increasing the Start Downsample can speed up the results, but reduces the resolution of the tracking results, which may negatively impact accuracy.

2.2.5. Radial Blur

Creates a circular shaped blur. The center of the blur can also be moved using the control point in the Viewer.



- **Center Position:** The center point from which the blur is calculated can be positioned anywhere you like. You can either manually type in a value, or select the Position property, then drag the Center Point shown in the Viewer to a new location.
- **Use Layer:** If you wish to link the center of the blur to the position of a different layer, you can use this property to select any layer on your timeline.
- **Angle:** Controls the amount of blur applied. Since radial blur has a greater effect on the image the farther you get from the center point, the amount of blur is defined in degrees, rather than pixels.

2.2.6. Zoom Blur

A blur emanating out from a central point. The center of the blur can also be moved using the control point in the Viewer.



- **Quality:** Affects the smoothness of the blurred results. Increasing the quality will smooth the results, but may take longer to calculate.
- **Strength:** The distance, in pixels, that each pixel will be blurred.
- **Center Position:** The center point from which the blur is calculated can be positioned anywhere you like. You can either manually type in a value, or select the Position property, then drag the Center Point shown in the Viewer to a new location.
- **Use Layer:** If you wish to link the center of the blur to the position of a different layer, you can use this property to select any layer on your timeline. When a layer is selected here, the Center Position property above serves as an offset from the position of the selected layer.

2.3. Channel

Channel effects are used to manipulate the channels in a layer, such as RGB or luminance. Each effect has its own page where you can find full details of the effect and its controls.

- [Channel Blur](#)
- [Channel Mixer](#)
- [Channel Swapper](#)
- [Channel Time Shift](#)
- [Chromatic Aberration](#)

2.3.1. Channel Blur

Blurs the color channels of the image individually. This can be useful for creating the impression of chromatic aberration.



Radius

- **Radius Red:** Sets the radius of the blur on the red channel. A higher radius creates a heavier blur.
- **Radius Green:** Sets the radius of the blur on the green channel. A higher radius creates a heavier blur.
- **Radius Blue:** Sets the radius of the blur on the blue channel. A higher radius creates a heavier blur.
- **Radius Alpha:** Sets the radius of the blur on the alpha channel, which determines the transparency of the image. A higher radius creates a heavier blur.

Dimension

- **Dimension Red:** Select whether the red channel blur is **Horizontal**, **Vertical**, or both **Horizontal and Vertical**.
- **Dimension Green:** Select whether the green channel blur is **Horizontal**, **Vertical**, or both **Horizontal and Vertical**.
- **Dimension Blue:** Select whether the blue channel blur is **Horizontal**, **Vertical**, or both **Horizontal and Vertical**.
- **Dimension Alpha:** Select whether the alpha channel blur is **Horizontal**, **Vertical**, or both **Horizontal and Vertical**.

2.3.2. Channel Mixer

Used to mix the color channels together. The red channel can have some of the blue channel introduced to it, for example. This can be useful for adjusting the color balance in a natural way, since the adjustments are based on another color channel from the source image.



The channel mixer is an effective option for creating a black and white image with extensive control over the contrast. Setting all values to zero, and then increasing the Red value in each color channel to 1.0, for example, will give you a black & white image of only the red channel. The same technique can be used with the green or blue channels as well.

Red

- **Red:** Sets the amount of the source red channel that is used to create the red output of your image. The default value of 1.0 delivers the red channel in its original state.
- **Green:** Sets the amount of the source green channel that is used to create the red output. This is set to 0.0 by default. Decreasing this value will darken the red output, based on the contrast contained in the green channel. Increasing the value will brighten the red output, based on the contrast of the green channel.
- **Blue:** Sets the amount of the source blue channel that is used to create the red output. This is set to 0.0 by default. Decreasing this value will darken the red output, based on the contrast contained in the blue channel. Increasing the value will brighten the red output, based on the contrast of the blue channel.
- **Constant:** Controls the base value of the red channel. This value is calculated after the three channels above are mixed, and increases or decreases the total output of the red channel, based on the sum of the three channels above.

Green

- **Red:** Sets the amount of the source red channel that is used to create the green output of your image. This is set to 0.0 by default. Decreasing this value will darken the green output, based on the contrast contained in the red channel. Increasing the value will brighten the green output, based on the contrast of the red channel.
- **Green:** Sets the amount of the source green channel that is used to create the green output of your image. The default value of 1.0 delivers the green channel in its original state.
- **Blue:** Sets the amount of the source blue channel that is used to create the green output. This is set to 0.0 by default. Decreasing this value will darken the green output, based on the contrast contained in the blue channel. Increasing the value will brighten the green output, based on the contrast of the blue channel.
- **Constant:** Controls the base value of the green channel. This value is calculated after the three channels above are mixed, and increases or decreases the total output of the red channel, based on the sum of the three channels above.

Blue

- **Red:** Sets the amount of the source red channel that is used to create the blue output of your image. This is set to 0.0 by default. Decreasing this value will darken the blue output, based on the contrast contained in the red channel. Increasing the value will brighten the blue output, based on the contrast of the red channel.
- **Green:** Sets the amount of the source green channel that is used to create the blue output. This is set to 0.0 by default. Decreasing this value will darken the blue output, based on the contrast contained in the green channel. Increasing the value will brighten the blue output, based on the contrast of the green channel.
- **Blue:** Sets the amount of the source blue channel that is used to create the blue output of your image. The default value of 1.0 delivers the blue channel in its original state.
- **Constant:** Controls the base value of the blue channel. This value is calculated after the three

channels above are mixed, and increases or decreases the total output of the blue channel, based on the sum of the three channels above.

2.3.3. Channel Swapper

Replaces channels with other channels. For example, you can have a layer's alpha (transparency) set to correspond to its red values, or its saturation. This is useful for both color grading and compositing. Channel swapping is also frequently used in Infrared (IR) photography.



- **Take Red From:** Select the source channel that will be used to generate the red output.
- **Take Green From:** Select the source channel that will be used to generate the green output.
- **Take Blue From:** Select the source channel that will be used to generate the blue output.
- **Take Alpha From:** Select the source channel that will be used to generate the alpha output.

2.3.4. Channel Time Shift

Moves red, green and blue channels backwards or forwards in time individually. This creates a trailing effect on moving objects, or can create a chromatic aberration style distortion.



- **Red Shift:** Sets the number of frames by which the red channel is shifted from the current frame number. Positive values will take frames from later in the clip, while negative values will take frames from earlier in the clip.
- **Green Shift:** Sets the number of frames by which the green channel is shifted from the current frame number. Positive values will take frames from later in the clip, while negative values will take frames from earlier in the clip.
- **Blue Shift:** Sets the number of frames by which the blue channel is shifted from the current frame number. Positive values will take frames from later in the clip, while negative values will take frames from earlier in the clip.
- **Alpha:** Selects the frame that will be used for the alpha channel. By default it uses the Current Frame. Average will calculate the average of the values of all three color channels, and use that frame. Red Shift, Green Shift and Blue Shift will take the value from the selected channel, and use that frame as the alpha. The alpha setting applies when you are working with a layer that included alpha transparency. On standard video, the alpha setting will have no effect, since the entire frame is completely opaque.

2.3.5. Chromatic Aberration

Chromatic Aberration splits the individual color channels of the image and offsets them slightly to create imperfect color alignment. This is effective for replicating the prismatic effect often created by light sources on camera, or for creating colorful distortion or grunge.



- **Distance:** Adjusts the distance between the original location and the aberration. Positive values move the aberration in the direction of the Angle specified below. Negative values move the aberration in the opposite direction.
- **Strength:** Controls the intensity of the aberration. At 100%, the full value of the aberrant channel is used. At lower values, the effect is reduced.
- **Use Lens:** Enabling this option reveals a circular control on the Viewer. Drag the radius of the circle to adjust the aberration.
- **Angle:** Sets the direction in which the aberration is offset.
- **Channels:** Select which channels are offset. The unlisted channel remains in its original position.
 - **Red and Blue:** Offsets the red and blue channels in opposite directions.
 - **Red and Green:** Offsets the red and green channels in opposite directions.
 - **Green and Blue:** Offsets the green and blue channels in opposite directions.

Radius

Each channel can be blurred independently. These controls define the radius of the blur applied to each channel.

- **Red:** Specify the radius of the blur applied to the red channel.
- **Green:** Specify the radius of the blur applied to the green channel.

- **Blue:** Specify the radius of the blur applied to the blue channel.
- **Alpha:** Specify the radius of the blur applied to the alpha channel.

Dimension

Select the dimension in which the blur is applied. The dimension can be adjusted per channel, or for all channels at once.

- **Toggle All Dimensions:** Synchronizes all channels to the same setting, then changes the setting applied to all channels together, to keep them synchronized.
- **Red:** Adjusts the dimension of the blur on the red channel.
- **Green:** Adjusts the dimension of the blur on the green channel.
- **Blue:** Adjusts the dimension of the blur on the blue channel.
- **Alpha:** Adjusts the dimension of the blur on the alpha channel.
 - **Horizontal and Vertical:** Selecting this option for any channel blurs the channel in both dimensions.
 - **Horizontal:** Selecting this option for any channel blurs the channel from left to right, along the X axis.
 - **Vertical:** Selecting this option for any channel blurs the channel from top to bottom, along the Y axis.

2.4. Color Correction

Color correction effects are designed to enhance the visual quality of layers by adjusting their colors. Color correction is intended for the initial color manipulation and for fixing problems occurring in your source media. Each effect has its own page where full details of the effect and its controls can be found.

- [Auto Color](#)
- [Auto Contrast](#)
- [Auto Levels](#)
- [Color Temperature](#)
- [Crush Blacks & Whites](#)
- [Custom Gray](#)
- [Dehaze](#)
- [Exposure Pro](#)
- [Hotspots](#)
- [Pro Skin Retouch](#)
- [White Balance](#)



Also see [Color Grading](#) to find more tools for making color adjustments.

2.4.1. Auto Color

Ignite Pro includes three Auto grading effects to adjust the layer's color, contrast or levels.

Compare the following image in each of these three effects to see the different results they give.



- **Threshold:** Sets the threshold below which colors will remain unaffected.
- **Blend With Original:** The effect of the Auto Color can be softened by increasing this setting. Higher values retain more of the original color.
- **Select Frame:** By default the auto grading effects update on each frame, which can cause fluctuations in the layer's appearance as the contents of the frame change. By activating the **Select frame** property you can manually choose a frame to use as the source for the automatic adjustment, which will be used for the duration of the layer.

2.4.2. Auto Contrast

Ignite Pro includes three Auto grading effects to adjust the layer's color, contrast or levels.

Compare the following image in each of these three effects to see the different results they give.



- **Threshold:** Sets the threshold below which colors will remain unaffected.
- **Blend With Original:** The effect of the Auto Contrast can be softened by increasing this setting. Higher values retain more of the original color.
- **Select Frame:** By default the auto grading effects update on each frame, which can cause fluctuations in the layer's appearance as the contents of the frame change. By activating the **Select frame** property you can manually choose a frame to use as the source for the automatic adjustment, which will be used for the duration of the layer.

2.4.3. Auto Levels

Ignite Pro includes three Auto grading effects to adjust the layer's color, contrast or levels.

Compare the following image in each of these three effects to see the different results they give.



- **Threshold:** Sets the threshold below which colors will remain unaffected.
- **Blend With Original:** The effect of the Auto Levels can be softened by increasing this setting. Higher values retain more of the original color.
- **Select Frame:** By default the auto grading effects update on each frame, which can cause fluctuations in the layer's appearance as the contents of the frame change. By activating the **Select frame** property you can manually choose a frame to use as the source for the automatic adjustment, which will be used for the duration of the layer.

2.4.4. Color Temperature

Use to warm or cool the colors in your layer. Color temperature is measured in Kelvin.

- **Temperature:** Adjusting to the left reduces color temperature, introducing more orange and red into the image. Adjusting to the right increases the color temperature, shifting it towards blue.

2.4.5. Crush Blacks & Whites

An alternative to simply altering the contrast, this enables you to change the black and white points separately for finer control.

- **Black:** Increasing this slider will raise the threshold below which shadow areas will be pushed into pure black.
- **White:** Decreasing this slider lowers the threshold above which highlights will be pushed into pure white.

2.4.6. Custom Gray

Custom Gray creates a grayscale image while providing finer control over how that image is generated. This is useful for creating specific black and white looks, as each RGB channel can be emphasized to a lesser or greater degree when creating the result, providing fine control over contrast.



- **Red:** Positive values increase the lightness of the red channel, negative values decrease the lightness of the red channel. Increasing the red level can help lighten skin tones, to bring the viewer's focus onto human subjects.
- **Green:** Positive values increase the lightness of the green channel, negative values decrease the lightness of the green channel.
- **Blue:** Positive values increase the lightness of the blue channel, negative values decrease the lightness of the blue channel.

✿ The sum of the values of the Red, Green, and Blue channels should equal 1.00 to maintain the overall luminosity of the original image. Total values above 1.00 will brighten the image overall, and total values below 1.00 will darken it.

- **Offset:** Raises or lowers the luminosity of the entire image equally, affecting all tones in the image equally
- **Exposure:** Raises or lowers the exposure of the image. This adjustment primarily affects the Highlights and Midtones, while the Shadow areas remain unaffected. Thus, reducing Exposure lowers the overall contrast of the image, while increasing Exposure increases the contrast between the brightest and darkest areas.

2.4.7. Dehaze

This tool restores detail to areas where haze obscured or reduced the detail when the image or video was captured. This is particularly useful in wide shots and distant landscapes, where fog or other haze in the air obscures the more distant details. You can also introduce haze into shots. It can also be a useful tool for adding detail to black and white footage.

- **Amount:** The primary control, which adjusts the amount of haze in the shot. Negative values reduce the haze and add detail. Positive values introduce haze, softening the detail.
- **Offset:** Adjusting the amount of haze frequently alters the brightness of the shot. Use offset to compensate for this alteration. Positive values increase brightness of the highlights, while negative values reduce brightness in the highlights.

2.4.8. Exposure Pro

A more powerful, more comprehensive control over the exposure of your image than the basic Exposure effect allows.



- **Exposure:** Positive values brighten the image, and negative values darken the image. The value is measured in EV, (Exposure Value) exactly as it is on a camera, so it is easy to make adjustments that directly correspond to adjustments in the camera settings.
- **Contrast:** Reducing contrast holds the midtones in place and brings the highlight and shadow values closer to the midtones. Increasing contrast pushes everything brighter than mid-gray closer to white, and everything darker than mid-gray closer to black.
- **Shadows:** Adjusts the shadow areas of the image, which can be brightened to reveal more detail, or darkened to make the shadows heavier.
- **Midtones:** Adjusts the midtones of the image, while keeping changes to the highlights and shadows to a minimum.
- **Highlights:** Adjusts the highlight areas of the image, which can be brightened to increase contrast, or darkened to reveal more detail and color.
- **Whites:** Sets the white point of the image.
- **Blacks:** Sets the black point of the image.
- **Vibrance:** Changes the saturation of the image, but affects colors with low saturation more than colors that are already saturated, to avoid over-saturation.
- **Saturation:** Shifts the saturation of all colors in the image. Increasing the value makes colors more intense, while reducing the value makes the colors more subdued.

2.4.9. Hot Spots

A quick and easy way to isolate and alter the bright areas of your layer. Hotspots allow you to select and modify the brightest areas of your image, based on a user-defined brightness threshold.



- **Threshold:** Sets the brightness threshold on which the effect is based. Only areas above your Threshold setting will retain detail.
- **Threshold Add Color:** All areas of the image below the threshold level will be filled with the color you select here. By default the color is black, which can be useful for isolating the hot spots in your image for compositing purposes. For example, you could duplicate your footage, apply Hot Spots to the top copy, then set the blend mode of the top copy to Screen to blend the results of the Hot Spots effect onto the original copy of the footage below it.

- **Saturation:** Adjusts the intensity of the colors in any areas brighter than the Threshold.
- **Brightness:** Alters the brightness of all areas in your footage which are brighter than the Threshold.
- **Smooth Source:** Applies a blur to the source image before calculating the threshold, which is useful for smoothing the transition areas around the threshold and removing graininess in the result.

2.4.10. Pro Skin Retouch

Apply realistic and subtle post-production make-up to your actors, with fine control over skin color, detection thresholds, skin treatment and highlight glow.

Skin retouching has three distinct sections. **Skin Detection** is used to define the area to be processed. This area is called the skin matte. **Skin Treatment** contains the main controls for adjusting the amount of processing applied to the skin matte. **Glow** is used to add a subtle glow to the skin area, to soften it.

Skin Detection

Pro Skin Retouch will automatically try to select common skin tones. Adjusting the settings below will allow you to ensure that all skin tones are selected, regardless of what color shifts or lighting is present in your footage.

- **Skin Color:** Sets the base color for skin detection. This should be adjusted based on the subject's skin color, by dragging the eyedropper onto a typical portion of the subject's skin in the viewer.
- **Brightness Threshold:** Limits the skin detection based on brightness. Higher values will include a wider range of highlights and shadows in the selection. This can be useful for selecting skin in shots with uneven lighting, but higher values also make it easier for unwanted areas of the frame to be included in the skin matte.
- **Chroma Threshold:** The skin detection is performed in the YUV color space. The chroma threshold defines the distance around the selected color used to create the detection circle. Increasing this setting includes a wider chromatic range in the selection, which can also easily begin to select unwanted areas of the frame. This setting should be kept at the lowest value that is acceptable for your footage.
- **Softness:** Applies a feather to the edge of the skin matte, to more naturally blend it with the rest of the frame.
- **Elliptical Deformation:** Adjusts the shape of the YUV detection circle into an ellipse, which is a more optimized shape for skin detection.
- **Blur Selection:** Blurs the resulting skin matte.

Skin Treatment

These controls define how the area inside the skin matte is modified.

- **Smooth:** Smooths the skin by applying a blur within the area of the skin matte.
- **Edge Threshold:** The skin treatment attempts to retain edge detail while smoothing the skin. The edge threshold determines how much detail is retained.
- **Saturation:** Adjusts the color intensity of the skin. A subtle saturation boost often creates a healthy appearance.
- **Exposure:** Adjusts the exposure within the skin matte. Since human faces are the most common subject of video shots, this allows you to easily brighten skin, and draw the viewer's eyes to your subject.

Glow

- **Brightness:** Adjusts the strength of the glow. Subtle use is recommended for average shots, but higher values can also be useful for creating elf-glow effects.
- **Threshold:** Applies a threshold to the skin. Higher thresholds reduce the amount of skin used to generate the glow.
- **Radius:** Higher radius values will increase the size of the glow, creating a softer, more diffuse result.
- **Colorize:** The glow can be tinted towards a specific color using the color picker. If you want to tint the glow away from normal skin color, to give it a sickly green tinge or an ethereal blue tint, for example, you could select those colors here.

View

Switching between these view modes makes it easier to adjust the skin detection settings.

- **Final Result:** This option shows the processed skin composited back onto your source layer, so you can see the exact results of the effect.
- **Skin Matte:** Shows a greyscale representation of the skin matte, so you can see exactly what areas are selected. White indicates selected areas, black indicates unselected areas, and grey indicates areas of partial selection. The darker a grey area is, the less effect the Skin Treatment settings will have in that area.
- **Skin:** Isolates the selected area and hides all parts of the layer that are outside of the skin matte.

2.4.11. White Balance

If your video was shot with incorrect white balance, or has an undesirable color shift, this effect can help to correct the problem. Use the color pipette to select a part of the video that should be white (or neutral grey) and the layer will be corrected.

In the example below, the white balance has been set to the frames of the sunglasses. The first image is the original, with an overly warm, yellowish appearance, while the second image shows the corrected white balance.



- **Color:** Specify the current color value of an area that should be neutral white. Ignite Pro will then apply a color adjustment to counteract the current tint of that value, and bring it back to a neutral value.

- **Pipette:** In most cases, the best results will be achieved by clicking the pipette, dragging the cursor to an area of your frame that should be white, and releasing the mouse button there.
- **Numerical Values:** You can also manually enter values for the red, green and blue channels.
- **Color Picker:** Click the color swatch to select a color using a traditional color picker.

2.5. Color Grading

Color grading effects are ideal for modifying the final look of a project, for artistic or stylistic purposes. **Color grading** was originally a photo lab term for the process of changing the color appearance during the process of duplicating source film to create a release print. These effects allow you to achieve similar results digitally, with a fine degree of control. Each effect has its own page, where full details of the effect and its controls are available.

- [Bleach Bypass](#)
- [Cine Style](#)
- [Color Vibrance](#)
- [Day for Night](#)
- [Duo Tone](#)
- [Grading Transfer](#)
- [Hue Colorize](#)
- [Hue Shift](#)
- [LUT](#)
- [Shadows & Highlights](#)
- [Three Strip Color](#)
- [Two Strip Color](#)
- [Vibrance](#)
- [Vignette](#)
- [Vignette Exposure](#)



See also [Color Correction](#) for more effects which can alter the colors of your footage.

2.5.1. Bleach Bypass

Bleach Bypass simulates the harsh, high contrast look of bleach bypass film processing. Often used for war movies. Bleach bypass takes its name from a technique used to develop color film stock. By skipping the bleaching step in the development process, the silver in the film emulsion is retained, resulting in a black-and-white image laid over the color image. The final image has reduced saturation, and increased contrast and graininess.



- **Amount:** The intensity of the Bleach Bypass effect applied to your source video.
- **Brightness:** Adjusts the brightness of the video. Actual film is typically shot 1 stop underexposed to prepare for bleach bypass processing, to compensate for the brightening that occurs during the process. This slider allows you to compensate for the brightness of your source video to get the result you want.
- **Silver Source:** You can change the source used to create the Silver map used by the bleach bypass here. Choose the **Intensity** of the image, the **Luminosity** of the image, or the **Lightness** of the image. This is a case where its best to just try the options, and see which one gives the most pleasing result.

2.5.2. Cine Style

Using an s-curve shift, cine style creates a cinematic, Hollywood-style look. It is a fast method for achieving a professional, high quality finish. While it offers rapid results, it still provides controls for fine tuning the appearance. Cine style includes built-in Grain, Vignette and Letterboxing features. These can be turned on or off independently, to create your desired final look.



- **S-Curve:** Adjusts the contrast of the image, by applying an s-curve based on the Curves effect.
- **Color Adjustment:** Controls the color shift applied to the image, which boosts contrasting colors, By

default, it pushed toward the teal and orange palette popular in Hollywood blockbusters, but this can be changed using the Color Adjustment Settings below.

Color Adjustment Settings

- **Shift:** Adjusts the midpoint of the map used to apply the colors to the image.
- **Hue:** The primary hue toward which the color will be shifted.
- **Exposure:** Adjust the exposure of the image. Use this control and the S-Curve control to find the balance of contrast and brightness that you need.
- **Saturation:** Increases the color intensity within the image.

2.35:1 Letterbox

Cinematic films often use a wider aspect ratio than standard 16:9 video cameras. You can add a letterbox to your video to give it a more cinematic look.

- **Enabled:** Toggles the letterbox on and off.
- **Offset:** Adjusts the vertical position of the video, so you can ensure the most important elements of the frame are visible within the letterbox.

Grain

The film stock which was used traditionally on Hollywood films, and from which films take their designation, often has a characteristic grain which is often lacking in video. Adding subtle grain can help your video have a more filmic appearance.

- **Enabled:** Toggles the Grain on and off
- **Amount:** The intensity of the Grain effect.
- **Size:** The size of the grain. Grain is generally of a similar size, but its size relative to the frame will vary based on the size of the film. So grain in 8mm film will appear larger than grain in 35mm film. Adjust the size here to get the look you are after.
- **Monochrome:** Toggles between full color grain and grain that is black and gray only.
- **Seed:** Each seed gives a different random pattern to the grain.

Vignette

Some camera lenses cause a vignette distortion which darkens the corners of the frame. These controls can be used to simulate that look, or simply to bring more focus to the center of the frame by darkening the edges.

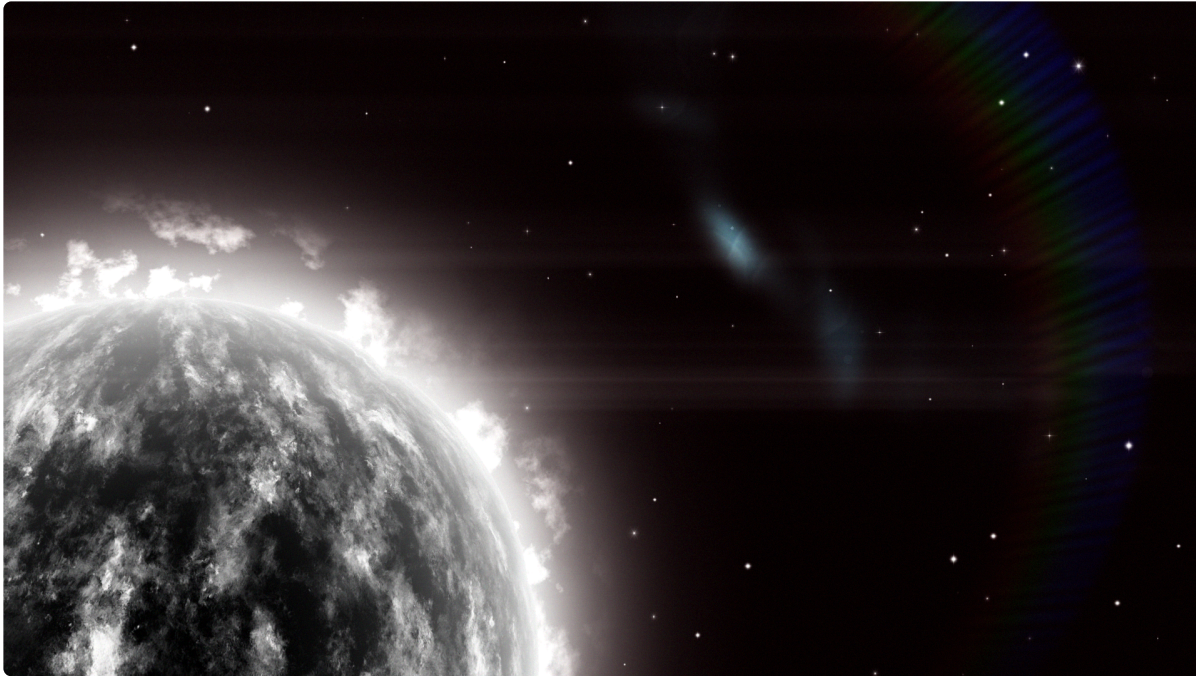
- **Enabled:** Toggles the Vignette on and off.
- **Center:** Controls the positioning of the vignette over the frame.
 - **Position:** By default the vignette is centered on the frame, but you can reposition the center anywhere within the frame
 - **Use Layer:** This menu allows you to select any other layer on the timeline, and use its position

coordinates as the center of the vignette.

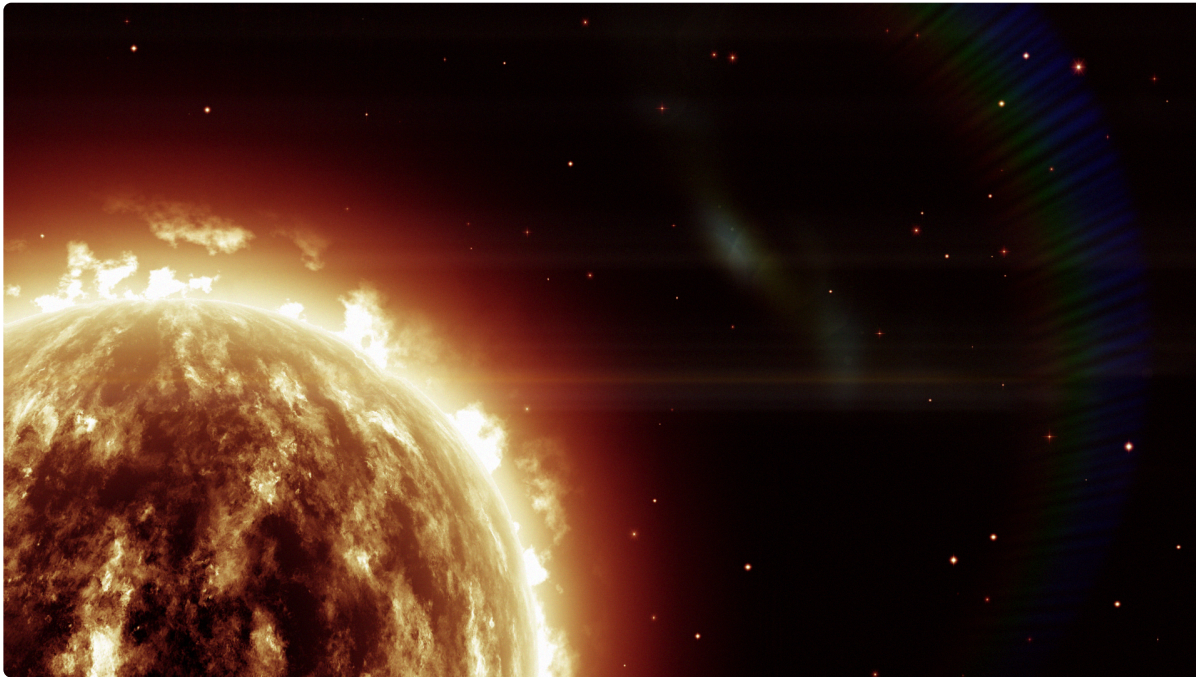
- **Horizontal Stretch:** Adjusts the width of the vignette.
- **Vertical Stretch:** Adjusts the height of the vignette.
- **Softness:** Controls the width of the feather applied to the edges of the vignette.
- **Curvature:** Changes the radius used in the corners of the vignette effect
- **Opacity:** Adjusts the transparency of the image within the vignette
- **Background:** These settings control the generation of the vignette itself.
 - **Opacity:** Adjusts the opacity of the vignette color applied to the image.
 - **Color:** Select the color which will be used by the vignette. Black is the default.

2.5.3. Color Vibrance

This effect is ideal for adding color to greyscale procedural effects such as particles and textures. Here is a procedurally generated fiery planet, in grayscale:



Here's the same shot with color vibrance applied:



Color vibrance is particularly effective at retaining detail in bright areas without creating excessive bloom. The strength of the vibrancy and the luminance preservation can be adjusted, as can the color and phasing

of the effect.

- **Preset:** Several presets are provided which can be used as starting points for your adjustments.
- **Color:** Select the base color which will be applied to the layer.
- **Vibrance:** Sets the intensity of the colorization.
- **Phase:** Shifts the hue of the colorization.
- **Preserve Luminance:** Defines how much the total luminance of each pixel is affected by the colorization. Higher values retain more of the original luminance, while lower values allow the added color to alter the luminance value if necessary.
- **Exposure:** Brightens or darkens primarily the highlights of the image, with minimal effects on the shadows.
- **Offset:** Brightens or darkens the shadow areas of the image, with minimal effects on the Highlights. Start with minor adjustments, as excessive changes here can create unnatural results.
- **Gamma:** Brightens or darkens the midtones of the image.
- **Invert:** Inverts the color values of the colorized image.
- **Generate Matte:** Creates a matte based on the colorization.

2.5.4. Day For Night

A quick way to convert a shot filmed in the day to having the appearance of being filmed at night. Day for Night applies a gradient based on the Horizon property, with separate controls for the near and far areas.



- **Horizon:** Sets the position of the horizon line, dividing the Near colorization and Far colorization of the image.
- **Near:** The Near controls are used to set the appearance of your subject and foreground; the area below the horizon line, which will often have a blue cast for a night scene.
 - **Red Gamma:** Defines the amount of red in your foreground.
 - **Blue Gamma:** Defines the amount of blue in your foreground.
 - **Brightness:** Increases or decreases the brightness of your foreground.
 - **Saturation:** Adjusts the intensity of the color in the affected image.
- **Far:** The Far controls alter the area above the horizon, which should usually be quite dark for a convincing night scene.
 - **Gamma:** Adjusts the darker areas of the background.
 - **Brightness:** Adjusts mainly the brighter areas of the background.
 - **Hue:** Selects the hue toward which the background will be tinted.

2.5.5. Duo Tone

Creates a two tone look, based on two specified colors. A gradient from one color to the other is mapped onto the tonal range of the image.



- **Preset:** Choose from a variety of preset color combinations.
- **Color 1:** Choose the color to be mapped onto the highlights of the image. Click the swatch to open a color picker and chose any color. You can also use the eyedropper to select a color from the Viewer, or manually enter the RGB values for your desired color.
- **Color 2:** Choose the color to be mapped onto the shadows of the image. Click the swatch to open a color picker and chose any color. You can also use the eyedropper to select a color from the Viewer, or manually enter the RGB values for your desired color.
- **Invert:** Inverts Color 1 and Color 2. If you realize you need to swap the colors, you can do so easily with this toggle.
- **Threshold:** Shifts the mid-point of the gradient, to adjust the location of the color split in the image's brightness range.
- **Softness:** Adjusts the overall contrast of the altered image.
- **Blend With Original:** Combines the duo tone effect with the original colors of the image. The percentage indicates how much of the original image is included.
- **Brightness Used:** Select the channel that will be used to determine the brightness and map the Duo Tone onto the original image. Choose between **Intensity**, **Lightness**, or **Luminosity**.

2.5.6. Grading Transfer

Matches the look of one layer to another layer. This is a quick way to grade based on an existing source. The transferred grade can then be further customized, either globally or within specific tonal ranges.

Global Transform

Adjusts the entire layer as a whole, affecting all tonal ranges equally.

- **Brightness Shift:** Controls how much of the selected layer's brightness is transferred.
- **Chrominance Shift:** Controls how much of the selected layer's color data is transferred.

Shadow Transform

Adjusts the darkest values of the layer, without altering the mid-tones or highlights.

- **Brightness:** Controls how much of the selected layer's brightness is transferred in the shadow areas.
- **Chrominance:** Controls how much of the selected layer's color data is transferred in the shadow areas.

Midtones Transform

Adjusts the middle tonal values of the layer, without altering the shadows or highlights.

- **Brightness:** Controls how much of the selected layer's brightness is transferred in the mid-tone areas.
- **Chrominance:** Controls how much of the selected layer's color data is transferred in the mid-tone areas.

Highlights Transform

Adjusts the brightest values of the layer, without altering the shadows or mid-tones.

- **Brightness:** Controls how much of the selected layer's brightness is transferred in the highlight areas.
- **Chrominance:** Controls how much of the selected layer's color data is transferred in the highlight areas.

2.5.7. Hue Colorize

Applies a single user-selected hue to the layer. The tonal value of each pixel is retained, and only the hue is adjusted.



- **Preset:** Choose from a variety of hue presets as a starting point.
- **Hue:** Select any hue on the color wheel, by shifting the angle of the wheel.
- **Hue Strength:** Adjust how far the original color is shifted toward the selected hue.
- **Saturation:** Changes the color intensity of the colorized image.
- **Lightness:** Changes the lightness of the colorized image.

2.5.8. Hue Shift

Hue Shift moves the entire color spectrum of the layer through different hues.



- **Preset:** Choose from a variety of hue presets as a starting point.
- **Hue Shift:** Adjust how far the original colors are shifted around the color wheel.
- **Saturation:** Changes the color intensity of the colorized image.
- **Lightness:** Changes the lightness of the colorized image.

2.5.9. LUT

LUT files are used to transform color values, which helps to ensure accurate color correction across multiple software and hardware setups. LUT also provides a powerful way to provide a one-click grade, simulating specific film stocks and processing techniques. Applying a LUT to flat footage can produce high quality results very quickly.

The LUT effect can import .cube LUT files.

Take a look at this comparison:



On the left is the original footage, which was purposely shot to be 'flat', providing a neutral starting point for the grade.


The middle image is using a LUT designed to mimic the look of KODACHROME film. The only additional alteration that has been made is to slightly reduce the saturation. In about 10 seconds you can go from a basic flat look to a highly dramatic and filmic grade." Find out more about KODACHROME and grab the LUT here.":<https://frankglencairn.wordpress.com/2014/01/15/everything-looks-better-on-kodachrome-k-tone-lut/>

The image on the right is using a Kodak 2393 emulation LUT, Again, you can achieve a good film look with literally a couple of clicks, and note how different this look is to the KODACHROME. [You can download several film emulation LUTs and find some great behind-the-scenes info here.](#)

- **File Path:** Click the folder icon to select the .cube file you wish to apply to your layer.

- **Strength:** Adjusts the intensity of the selected LUT's effect on your layer, to provide finer control.

Using LUTs

1. Add the LUT effect to your layer, from the Effects panel.
2. In the controls for the LUT effect, click the **Folder** icon  to the right of the LUT File property.
3. In the File browser that opens, navigate to the .cube file that you wish to use, and select it.

The LUT will be applied to your layer, and the path to its location will be shown in the effect controls.

2.5.10. Shadows & Highlights

Provides fine control over the visible detail in the extremes of the layer's tonal range.



- **Shadow Amount:** Raises the tonal value of the shadow areas, to reveal detail that is hidden in the shadows.
- **Highlight Amount:** Lowers the tonal value of the highlight areas, to reveal detail that is blown out.

Shadow

- **Tonal Width:** Determines the range of tones that will be included in shadow adjustments. Higher values will include more midtones and brighter areas.
- **Radius:** Defines how many surrounding pixels will be averaged in when adjusting shadow areas.
- **Black Clip:** Pushes all areas at or below the selected tonal value to pure black.

Highlight

- **Tonal Width:** Determines the range of tones that will be included in highlight adjustments. Higher values will include more midtones and darker areas.
- **Radius:** Defines how many surrounding pixels will be averaged in when adjusting highlight areas.
- **Black Clip:** Pushes all areas at or above the selected tonal value to pure white.
- **Color Correction:** In areas where colors are pushed to high levels of saturation by the adjustments, this brings the colors down toward more natural values.
- **Midtone Correction:** Shifts the midtones of the image to make them brighter (right) or darker (left).
- **Blend With Original:** Combines the adjustments with the original colors of the image. The percentage indicates how much of the original image is included.

2.5.11. Three Strip Color

Simulates the three strip Technicolor film process commonly used in the early days of color film, resulting in richer, deeper colors.



- **Preset:** Use the menu to choose from several preset starting points.
- **Red Strength:** Adjusts the intensity of the Red channel of the image.
- **Green Strength:** Adjusts the intensity of the Green channel of the image.
- **Blue Strength:** Adjusts the intensity of the Blue channel of the image.

2.5.12. Two Strip Color

Simulates the two strip Technicolor film process. More information on the process can be found in this article on [Wikipedia](#)

In the original process, a black and white negative was used, and a prism beam-splitter behind the camera lens exposed two consecutive frames simultaneously, one behind a red filter, the other behind a green filter.

After development, each print was dyed to a complimentary color of the filter used: red for the green-filtered images, cyan for the red-filtered ones. The highlights would remain clear, dark areas would be strongly colored, and intermediate tones were colored proportionally. The two prints, made on film stock half the thickness of regular film, were then cemented together back to back to create a projection print. This process is simulated in HitFilm's Two Strip color effect.

- **Preset:** Several presets are included as starting points.
- **Red Filter:** Choose the color of the red prism.
- **Green/Blue Filter:** Choose the color of the green prism.
- **Red Dye:** Choose the color of the dye applied to the image created by the green prism, which should be complimentary and is Red by default.
- **Cyan Dye:** Choose the color of the dye applied to the image created by the red prism, which should be complimentary and is Cyan by default.
- **Brightness:** Adjusts the overall brightness of the modified image.
- **Saturation:** Adjusts the color intensity of the modified image.
- **Offset Darks:** Slide left to intensify shadows, or shift right to lessen the shadow intensity.

2.5.13. Vibrance

Adds pop to your image, emphasizing edge detail by increasing local contrast. To generate the result, the effect first generates a temporary copy of your image with inverted colors. Then, this inverted image is blurred and mixed with the original. The result of that mixing is then applied to the original image using a 'soft light' blend mode.



- **Radius:** Sets the radius of the blur applied to the inverted copy.
- **Intensity:** Adjusts the mix ratio of the original image and the inverted copy. Higher values use more of the inverted copy, lower values use more of the original image.
- **Iterations:** The number of times the effect is applied. Higher values intensify the results.

2.5.14. Vignette

Adds a colored overlay to the edges of the layer. You can customize the color, shape and softness of the vignette.



- **Preset:** Several presets are available as starting points of varying intensity.
- **Vignette Center:** By default the vignette is centered in the frame, but you can reposition the center if you wish.
 - **Position:** Sets the exact location of the vignette center, using X and Y values.
 - **Use Layer:** Select any other layer on the timeline to use it's position as the center of the vignette. When a layer is selected, the Position property above functions as an offset from the selected layer's position.
- **Width:** The width of the vignette's bright center, in pixels.
- **Height:** The height of the vignette's bright enter, in pixels.
- **Horizontal Stretch:** Adjusts the width of the vignette.
- **Vertical Stretch:** Adjusts the height of the vignette.
- **Softness:** Defines the distance from the center to the start of the feather.
- **Curvature:** Shifts the distance from the center to the mid-point of the feather. Lower values give a more subtle effect.
- **Strength:** Sets the intensity of the vignette.
- **Color:** Choose the color used for the surrounding area that creates the vignette.
 - **Alpha:** Adjusts the opacity of the vignette color.
 - **Color:** Choose the color to be used for the vignette. Click the swatch to open a color picker and chose any color. You can also use the eyedropper to select a color from the Viewer, or manually enter the RGB values for your desired color.

2.5.15. Vignette Exposure

This alternate vignette effect adjusts the exposure of the edges of the frame, instead of applying an overlay. This can produce a subtler and more natural vignetting result. The vignette can also be pushed brighter, which creates a halo effect or can be used to counteract unwanted vignetting in the source footage.

- **Amount:** Sets the exposure of the vignette. Positive values brighten the exposure, and negative values darken the exposure.
- **Mid-point:** Sets the distance from the center of the effect to the mid-point of the gradient.
- **Center:** By default the vignette is centered in the frame, but you can reposition the center if you wish.
 - **Position:** Sets the exact location of the vignette center, using X and Y values.
 - **Use Layer:** Select any other layer on the timeline to use it's position as the center of the vignette. When a layer is selected, the Position property above functions as an offset from the selected layer's position.

Stretch

- **Global:** Adjusts the overall size of the gradient.
- **Horizontal:** Adjusts the width of the vignette.
- **Vertical:** Adjusts the height of the vignette.
- **Rotation:** Rotates the vignette from its default angle.

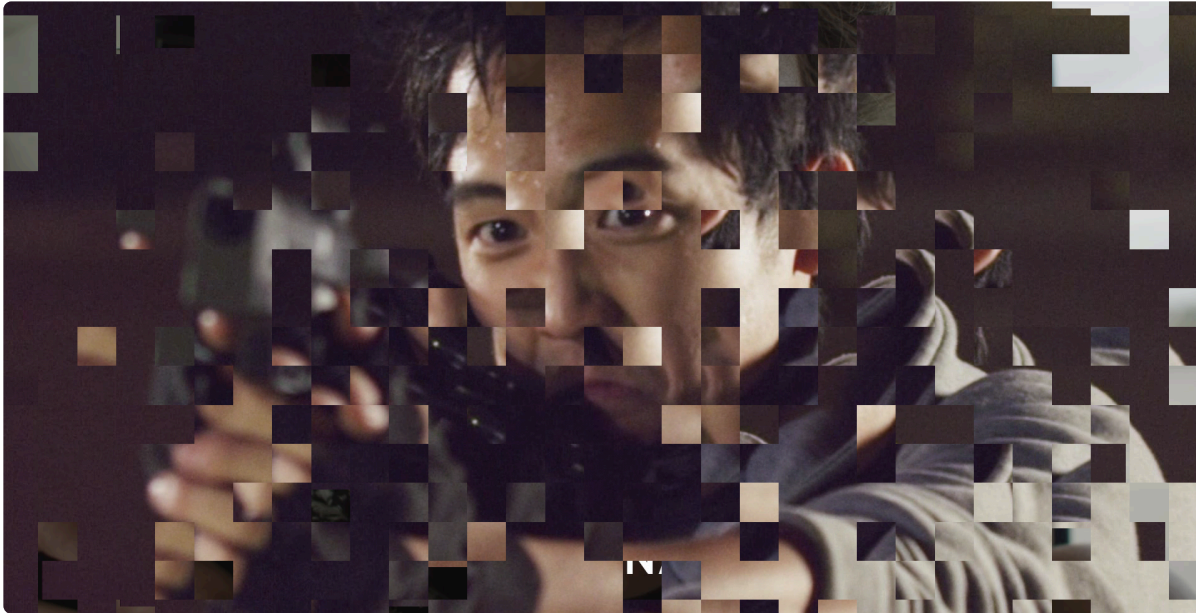
2.6. Distort

The Distort effects are used to bend, shift, or otherwise alter the details contained within a layer. Each effect has its own page where you can find full details of the effect and its controls.

- [Block Displacement](#)
- [Bulge](#)
- [Chromenator](#)
- [Derez \(VGHS\)](#)
- [Displacement](#)
- [Energy Distortion](#)
- [Fluid Distortion](#)
- [Heat Distortion](#)
- [Insect Vision](#)
- [Magnify](#)
- [Mosaic](#)
- [Puppet](#)
- [Smoke Distortion](#)
- [Twirl](#)
- [Waves](#)
- [Witness Protection](#)

2.6.1. Block Displacement

Block displacement divides the contents of the layer into blocks, then randomly scatters the blocks to break up the layer



- **Size:** Sets the size, in pixels, of the blocks.
- **Displacement:** The distance, in pixels, which the blocks will be displaced from their original position.

Block Settings

- **Seed:** Randomizes the pattern of blocks the layer is divided into.
- **Coverage:** The percentage of the source layer that will be visible.
- **Displaced Blocks:** The percentage of the visible blocks that will be displaced from their original position. By keyframing the Coverage and Displaced Blocks values, you can make the blocks of a layer gradually appear, or gradually assume their correct position to build the layer.
- **Aspect Ratio:** Adjusts the aspect ratio of the area into which the blocks can be displaced.

Position

- **Position:** Shifts the position of the blocks without moving the displaced layer.
- **Use Layer:** Use this menu to select another layer on the timeline and use its position to control the block position. When a Layer is selected here, the Position property above reflects the offset of the blocks from the parent layer's location.

Displacement Settings

- **Seed:** Randomizes the direction in which each block is displaced.
- **Rotation:** Rotates the portion of the layer that is visible within each block
- **Sub-Block Displacement:** Adds a secondary layer of displacement, to distort the layer even further.

- **Displacement Axis:** Select the axis on which the blocks will be displaced:
 - **Horizontal:** Blocks are only displaced left and right, along the horizontal axis.
 - **Vertical:** Blocks are only displaced upward and downward, along the vertical axis.
 - **Both:** Blocks are displaced in all directions.
- **Wrap:** Controls how the displacement will be wrapped when it reaches the edge of the frame.
 - **No:** No wrapping is applied.
 - **Tiled:** A second identical copy of the image is used alongside the original to fill the wrapped area.
 - **Reflection:** A mirrored copy is used alongside the original to fill the wrapped area.

Image Position

- **Position:** Shifts the position of the source layer without moving the displaced blocks.
- **Use Layer:** Use this menu to select another layer on the timeline and use its position to control the image position. When a Layer is selected here, the Position property above reflects the offset of the block's contents from the parent layer's location.

2.6.2. Bulge

Creates the illusion of a bulging shape pushing through the layer. You can choose from multiple shapes and adjust the size and shape of the bulge.



- **Center:** By default the bulge is centered in the frame, but you can reposition the center if you wish.
 - **Position:** Sets the exact location of the vignette center, using X and Y values.
 - **Use Layer:** Select any other layer on the timeline to use it's position as the center of the vignette. When a layer is selected, the Position property above functions as an offset from the selected layer's position.
- **Bulge:** Adjusts the height of the bulge. Negative values invert the bulge and create a recessed pinch effect.
- **Radius:** Set the overall size of the bulge.
- **Plateau:** You can create a flat area in the center of the bulge. This value sets the radius of that flat area.
- **Wrap:** When the edges of the frame are distorted, especially using negative values, this determines how the blank space created is handled.
 - **None:** The blank areas remain unaffected.
 - **Tile:** An exact copy of the layer is used to fill the blank area.
 - **Reflect:** A mirrored copy of the layer is used to fill the blank area. The mirroring helps hide any seam at the layer's edge.
- **Shape:** The bulge can be created in a variety of geometric shapes.
 - Choose from **Circle**, **Triangle**, **Square**, **Pentagon**, **Hexagon**, **Heptagon**, **Octagon**, **Nonagon**, or **Decagon**.
- **Scale:** Independently adjust the width and height of the bulge.
 - **X:** Adjusts the width of the bulge.
 - **Y:** Adjusts the height of the bulge.

2.6.3. Chromenator

Creates the appearance of liquid metal.



- **Preset:** Chose from preset configurations of settings.
- **Source Layer:** The Chromenator effect creates a reflective surface. Select another layer to be reflected into the chrome surface created.
- **Channel:** Select a channel of the layer the effect is applied to. The selected channel will be used to create the depth map on which the Chromenator effect is based.
- **Detail Scale:** Sets the minimum size of details that will be included in generating the depth map.
- **Reflection Distance:** Changes the distance between the surface and the reflection.
- **Wrap:** When the edges of the frame are distorted, wrap determines how the blank space created is handled.
 - **None:** The blank areas remain unaffected.
 - **Tile:** An exact copy of the layer is used to fill the blank area.
 - **Reflect:** A mirrored copy of the layer is used to fill the blank area.

2.6.4. Derez (VGHS)

Custom-built for Freddie Wong's Video Game High School web series. Creates a digital glitching appearance which was used for characters disappearing out of the game after being shot.



- **View:** Select the component of the effect you wish to see.
 - **Result:** Shows the final result, with all components of the effect enabled.
 - **Pixelation:** Shows only the pixelation component of the effect, with its associated controls.
 - **Wavy Lines:** Shows only the wavy lines component of the effect, with its associated controls.
 - **Horizontal Lines:** Shows only the horizontal lines component of the effect, with its associated controls.
- **Mask:** Select another layer from the timeline to be used as a mask for the effect. The results of the effect will only be visible within the area of the selected layer.

Pixelation

- **Strength:** Higher values make the pixelation more obvious.
- **Source Frame Shift:** The pixelation can be based on a different frame of the layer the effect is applied to, to create a temporal glitching. Select the amount of frame shift used with this control.
- **Mask Erode/Expand:** When a Mask is selected, this control adjusts the exact size of the mask area. Negative values contract the mask, and positive values expand the mask.
- **Horizontal Blocks:** Sets the number of horizontal blocks in the effect. Lower values create larger blocks.
- **Vertical Blocks:** Sets the number of vertical blocks in the effect. Lower values create larger blocks.

Wavy Lines

- **Strength:** Higher values make the wavy lines more obvious.
- **Source Frame Shift:** The distortion of the wavy lines can be based on a different frame of the layer the effect is applied to, to create a temporal glitching. Select the amount of frame shift used with this control.

Lines

- **Frequency:** Controls the number of wavy lines. Higher values create more lines.
- **Sharpness:** Defines how separate and distinct the lines are. Higher values blur the lines together more.
- **Angle:** Rotate the knob to set the angle of the wavy lines. The angle sets the direction of frequency, and is perpendicular to the lines themselves.
- **Smooth Source:** The wavy lines are distorted based on a depth map created from the underlying layer. Increasing this value applies a blur to the layer before calculating the depth map, to smooth the distortion.

Color

- This effect has a built-in version of the Color Correction Wheels effect that modifies the wavy lines specifically. For full details on these controls, see the [Color Correction](#) page of this manual.

Displacement

- **Smooth Source:** The wavy lines are displaced based on selected channels of the underlying layer. Increasing this value applies a blur to the selected channels before calculating the displacement, to smooth the distortion.
- **Horizontal Displacement:** Sets the distance, in pixels, of the horizontal displacement.
- **Vertical Displacement:** Sets the distance, in pixels, of the vertical displacement.
- **Horizontal Displacement Channel:** Select the channel of the underlying layer that will be used to calculate the horizontal displacement.
- **Vertical Displacement Channel:** Select the channel of the underlying layer that will be used to calculate the vertical displacement.

Horizontal Lines

- **Strength:** Higher values make the horizontal lines more obvious.
- **Source Frame Shift:** The distortion of the horizontal lines can be based on a different frame of the layer the effect is applied to, to create a temporal glitching. Select the amount of frame shift used with this control.

Inverted Lines

- **Frequency:** Controls the number of horizontal lines. Higher values create more lines.
- **Sharpness:** Defines how separate and distinct the lines are. Higher values blur the lines together more.
- **Angle:** By default these lines are horizontal, as the name implies, but you can rotate the knob to set

the angle of the horizontal lines.

- **Brightness:** Sets the brightness of the inverted lines. Lower values create brighter lines.
- **Offset:** Controls the overall brightness of the layer. Higher values create a darker image.
- **Smooth Source:** Increasing this value applies a blur to the layer before calculating the depth map, to smooth the distortion. Lower values make the shapes in the underlying layer more apparent.

Brightness Contrast

- **Brightness:** Adjusts the brightness of the final, altered image.
- **Contrast:** Adjusts the contrast of the final, altered image.

2.6.5. Displacement

Shifts the pixels in particular directions according to the displacement source. This can create excellent invisibility and other distortion effects. You can select the source layer and source channels, plus adjust the strength of the displacement.



- **Source Layer:** Select another layer on the timeline to be used as the displacement source.
- **Horizontal Displacement:** Select the channel of the source layer that will be used to calculate the horizontal displacement.
- **Max Horizontal Displacement:** Displacement is based on the value of each pixel, with middle gray pixels remaining in place, darker pixels shifting right, and lighter pixels shifting left. This value sets the maximum distance, in pixels, of the horizontal displacement. Using a negative value inverts the direction in which brighter and darker pixels are shifted.
- **Vertical Displacement:** Select the channel of the source layer that will be used to calculate the vertical displacement.
- **Max Vertical Displacement:** Displacement is based on the value of each pixel, with middle gray pixels remaining in place, darker pixels shifting right, and lighter pixels shifting left. This value sets the maximum distance, in pixels, of the vertical displacement. Using a negative value inverts the direction in which brighter and darker pixels are shifted.
- **Wrap Pixels:** When the edges of the frame are distorted, this setting determines how the blank space created is handled.
 - **None:** The blank areas remain unaffected.
 - **Tile:** An exact copy of the layer is used to fill the blank area.
 - **Reflect:** A mirrored copy of the layer is used to fill the blank area. The mirroring makes the edges of the frame less apparent, helping to hide any visible seams.

2.6.6. Energy Distortion

Distorts your footage based on a procedurally generated fractal pattern. You can adjust the appearance of the distortion using the controls.



- **Distortion:** Adjusts the intensity of the distortion applied to the layer.
- **Scale:** Sets the scale of the distortion
- **Diffusion Bias:** Set the amount of the image that is affected by diffusion blurring. Increasing the setting will make the blur more prevalent.
- **Diffusion Strength:** Sets the strength of the blur in the areas affected by diffusion.
- **Distortion Rotation:** Sets the angle in which the distortion is applied.
- **Distort Single Axis:** Enabling this option applies the distortion in a single direction. The specific angle used can be set with the Distortion Rotation setting above.

Animation

By default the Energy Distortion is animated. You can set the details of the movement within the effect here.

- **Wind Direction:** Sets the direction of the movement
- **Wind Speed:** Sets the speed of the movement along the axis determined in the Wind Direction, by altering the position of the noise. Higher values will create more movement in the distortion.
- **Noise Speed:** Sets the speed of the movement of the fractal noise the distortion is based on. This speed alters the shape of the noise, while the Wind Speed property affects its position.

Noise

- **Seed:** Acts as a randomizer for the shape of the noise. Each seed value sets a unique starting shape for the procedurally generated noise.
- **Interpolation:** Provides options for how the noise is interpolated. Linear Interpolation uses the simplest path to connect points in the rectilinear grid the effect is based on. Cubic interpolation uses smoother paths to interpolate the grid. Neither option is better than the other, they just provide different options for the effect.

Transform

Multiple layers of fractal noise are combined to create the final noise that the distortion is based on. The Transform controls adjust the primary noise, while the Sub Settings alter the sub levels of noise that add detail to the distortion.

- **Position:** Sets the position of the primary fractal noise the distortion is based on.
- **Use Layer:** You can select another layer on your timeline, to parent the position of the distortion to that layer
- **Rotation:** Sets the rotation of the primary fractal noise
- **Axis Scale X:** Alters the aspect ratio of the primary fractal noise by changing its scale along the X axis. Higher values will stretch the distortion horizontally.
- **Axis Scale Y:** Alters the aspect ratio of the primary fractal noise by changing its scale along the Y axis. Higher values will stretch the distortion vertically.

Sub Settings

- **Sub Levels:** Sets the number of sub levels that are used to calculate the distortion. Higher levels create greater detail in the distortion.
- **Influence:** Controls the intensity with which the sub levels alter the primary noise.
- **Scale:** Sets the scale of the sub levels, thus impacting the size of the detail added by the additional sub levels.
- **Rotation:** Alters the angle of the sub levels which are laid over the primary noise.
- **Offset:** Sets the position of the sub levels in relation to the primary noise position.
- **Center Subscale:** Enabling this option links the center of all subscale layers, so they stay aligned when offset using the above control.

2.6.7. Fluid Distortion

Distorts your footage based on a procedurally generated fractal pattern. You can adjust the appearance of the distortion using the controls.



- **Distortion:** Adjusts the intensity of the distortion applied to the layer.
- **Scale:** Sets the scale of the distortion
- **Diffusion Bias:** Set the amount of the image that is affected by diffusion blurring. Increasing the setting will make the blur more prevalent.
- **Diffusion Strength:** Sets the strength of the blur in the areas affected by diffusion
- **Distortion Rotation:** Sets the angle in which the distortion is applied.
- **Distort Single Axis:** Enabling this option applies the distortion in a single direction. The specific angle used can be set with the Distortion Rotation setting above.

Animation

By default the Fluid Distortion is animated. You can set the details of the movement within the effect here.

- **Wind Direction:** Sets the direction of the movement
- **Wind Speed:** Sets the speed of the movement along the axis determined in the Wind Direction, by altering the position of the noise. Higher values will create more movement in the distortion.
- **Noise Speed:** Sets the speed of the movement of the fractal noise the distortion is based on. This speed alters the shape of the noise, while the Wind Speed property affects its position.

Noise

- **Seed:** Acts as a randomizer for the shape of the noise. Each seed value sets a unique starting shape

for the procedurally generated noise.

- **Interpolation:** Provides options for how the noise is interpolated. Linear Interpolation uses the simplest path to connect points in the rectilinear grid the effect is based on. Cubic interpolation uses smoother paths to interpolate the grid. Neither option is better than the other, they just provide different options for the effect.

Transform

Multiple layers of fractal noise are combined to create the final noise that the distortion is based on. The Transform controls adjust the primary noise, while the Sub Settings alter the sub levels of noise that add detail to the distortion.

- **Position:** Sets the position of the primary fractal noise the distortion is based on.
- **Use Layer:** You can select another layer on your timeline, to parent the position of the distortion to that layer
- **Rotation:** Sets the rotation of the primary fractal noise
- **Axis Scale X:** Alters the aspect ratio of the primary fractal noise by changing its scale along the X axis. Higher values will stretch the distortion horizontally.
- **Axis Scale Y:** Alters the aspect ratio of the primary fractal noise by changing its scale along the Y axis. Higher values will stretch the distortion vertically.

Sub Settings

- **Sub Levels:** Sets the number of sub levels that are used to calculate the distortion. Higher levels create greater detail in the distortion.
- **Influence:** Controls the intensity with which the sub levels alter the primary noise.
- **Scale:** Sets the scale of the sub levels, thus impacting the size of the detail added by the additional sub levels.
- **Rotation:** Alters the angle of the sub levels which are laid over the primary noise.
- **Offset:** Sets the position of the sub levels in relation to the primary noise position.
- **Center Subscale:** Enabling this option links the center of all subscale layers, so they stay aligned when offset using the above control.

2.6.8. Heat Distortion

Applies automatic heat distortion with built-in displacement and diffusion. The behavior can be adjusted for faster or slower movement.



- **Scale:** Sets the scale of the distortion
- **Distortion:** Adjusts the intensity of the distortion applied to the layer.
- **Diffusion Bias:** Set the amount of the image that is affected by diffusion blurring. Increasing the setting will make the blur more prevalent.
- **Diffusion Strength:** Sets the strength of the blur in the areas affected by diffusion
- **Distortion Rotation:** Sets the angle in which the distortion is applied.
- **Distort Single Axis:** Enabling this option applies the distortion in a single direction. The specific angle used can be set with the Distortion Rotation setting above.

Animation

By default the Energy Distortion is animated. You can set the details of the movement within the effect here.

- **Wind Direction:** Sets the direction of the movement
- **Wind Speed:** Sets the speed of the movement along the axis determined in the Wind Direction, by altering the position of the noise. Higher values will create more movement in the distortion.
- **Noise Speed:** Sets the speed of the movement of the fractal noise the distortion is based on. This speed alters the shape of the noise, while the Wind Speed property affects its position.

Noise

- **Seed:** Acts as a randomizer for the shape of the noise. Each seed value sets a unique starting shape

for the procedurally generated noise.

- **Interpolation:** Provides options for how the noise is interpolated. Linear Interpolation uses the simplest path to connect points in the rectilinear grid the effect is based on. Cubic interpolation uses smoother paths to interpolate the grid. Neither option is better than the other, they just provide different options for the effect.

Transform

Multiple layers of fractal noise are combined to create the final noise that the distortion is based on. The Transform controls adjust the primary noise, while the Sub Settings alter the sub levels of noise that add detail to the distortion.

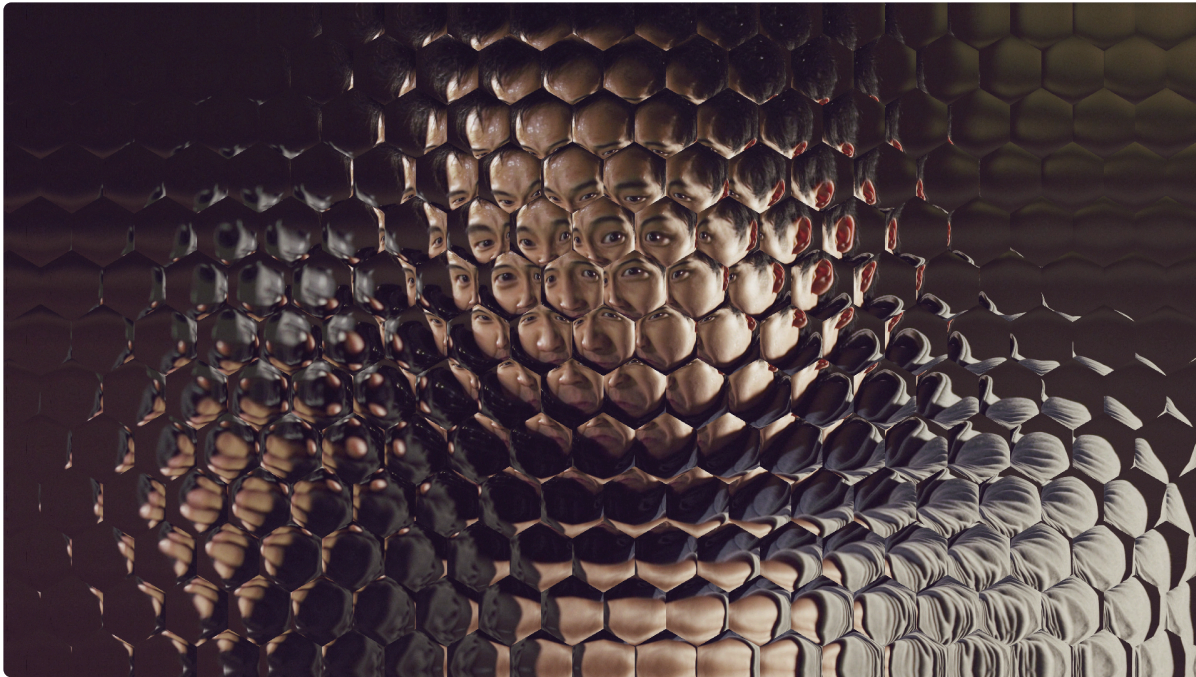
- **Position:** Sets the position of the primary fractal noise the distortion is based on.
- **Use Layer:** You can select another layer on your timeline, to parent the position of the distortion to that layer
- **Rotation:** Sets the rotation of the primary fractal noise
- **Axis Scale X:** Alters the aspect ratio of the primary fractal noise by changing its scale along the X axis. Higher values will stretch the distortion horizontally.
- **Axis Scale Y:** Alters the aspect ratio of the primary fractal noise by changing its scale along the Y axis. Higher values will stretch the distortion vertically.

Sub Settings

- **Sub Levels:** Sets the number of sub levels that are used to calculate the distortion. Higher levels create greater detail in the distortion.
- **Influence:** Controls the intensity with which the sub levels alter the primary noise.
- **Scale:** Sets the scale of the sub levels, thus impacting the size of the detail added by the additional sub levels.
- **Rotation:** Alters the angle of the sub levels which are laid over the primary noise.
- **Offset:** Sets the position of the sub levels in relation to the primary noise position.
- **Center Subscale:** Enabling this option links the center of all subscale layers, so they stay aligned when offset using the above control.

2.6.9. Insect Vision

Distorts the layer through a hexagon pattern of tiles, to create the appearance of a multi-faceted insect eye.



- **Preset:** Choose a preset configuration of settings as a starting point.
- **Center:** By default the effect is centered in the frame, but you can reposition the center if you wish.
 - **Position:** Sets the exact location of the effect center, using X and Y values.
 - **Use Layer:** Select any other layer on the timeline to use it's position as the center of the effect. When a layer is selected, the Position property above functions as an offset from the selected layer's position.
- **Rotation:** Rotates the hex pattern around the central tile.
- **Lens Size:** Determines the width, in pixels, of each hex tile in the pattern.
- **Zoom:** Controls how much of the underlying image is visible through each hex tile, or lens. Lower values tend to give the effect of multiple copies of the image typically associated with this effect.
- **Iris Bulge:** Distorts each lens as if it was bulged, creating a fisheye distortion within each lens.
- **Wrap:** At low Zoom levels, the edges of the frame may become visible within each lens. This control determines how the blank space created is handled.
 - **No:** The blank areas remain unaffected.
 - **Tile:** An exact copy of the layer is used to fill the blank area.
 - **Reflect:** A mirrored copy of the layer is used to fill the blank area.

2.6.10. Magnify

Zooms in on a specific area of the layer. The shape, size and position of the magnification can all be changed.



- **Center:** By default the magnification is centered in the frame, but you can reposition the center if you wish.
 - **Position:** Sets the exact location of the magnification center, using X and Y values.
 - **Use Layer:** Select any other layer on the timeline to use its position as the center of the magnification. When a layer is selected, the Position property above functions as an offset from the selected layer's position.
- **Radius:** Sets the radius, in pixels, of the magnified area.
- **Magnification:** Adjusts the amount of magnification applied within the radius.
- **Bulge:** Controls the amount of bulge distortion applied within the radius. Higher bulge values reduce the distortion at the edges of the magnified area.
- **Wrap:** When the edges of the frame are distorted, wrap determines how the blank space created is handled.
 - **No:** The blank areas remain unaffected.
 - **Tile:** An exact copy of the layer is used to fill the blank area.
 - **Reflect:** A mirrored copy of the layer is used to fill the blank area.
- **Shape:** Select the shape to be used for the bulge.
 - Choose between **Circle**, **Triangle**, **Square**, **Pentagon**, **Hexagon**, **Heptagon**, **Octagon**, **Nonagon**, or **Decagon**.
- **Blend:** Choose the blend mode used to apply the effect to the underlying layer.

Shape

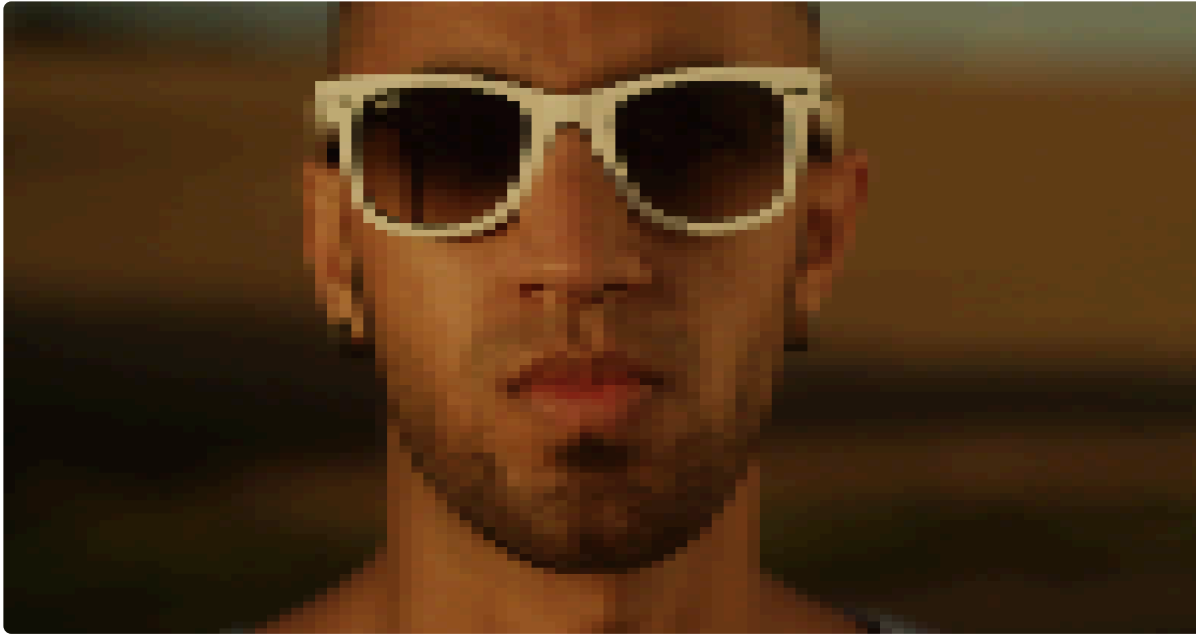
When a shape other than Circle is selected in the Shape menu, additional controls will be displayed to

provide further control over the shape.

- **Rotation:** Turn the knob to rotate the magnified shape.
- **Curvature:** Adds a curve to each edge of the shape. Negative values curve inward, and positive values curve outward.
- **Pinch:** Adjusts the weighting of the curvature.
- **Shift:** Rotates the curvature without moving the shape itself, to shift how the edges are curved.

2.6.11. Mosaic

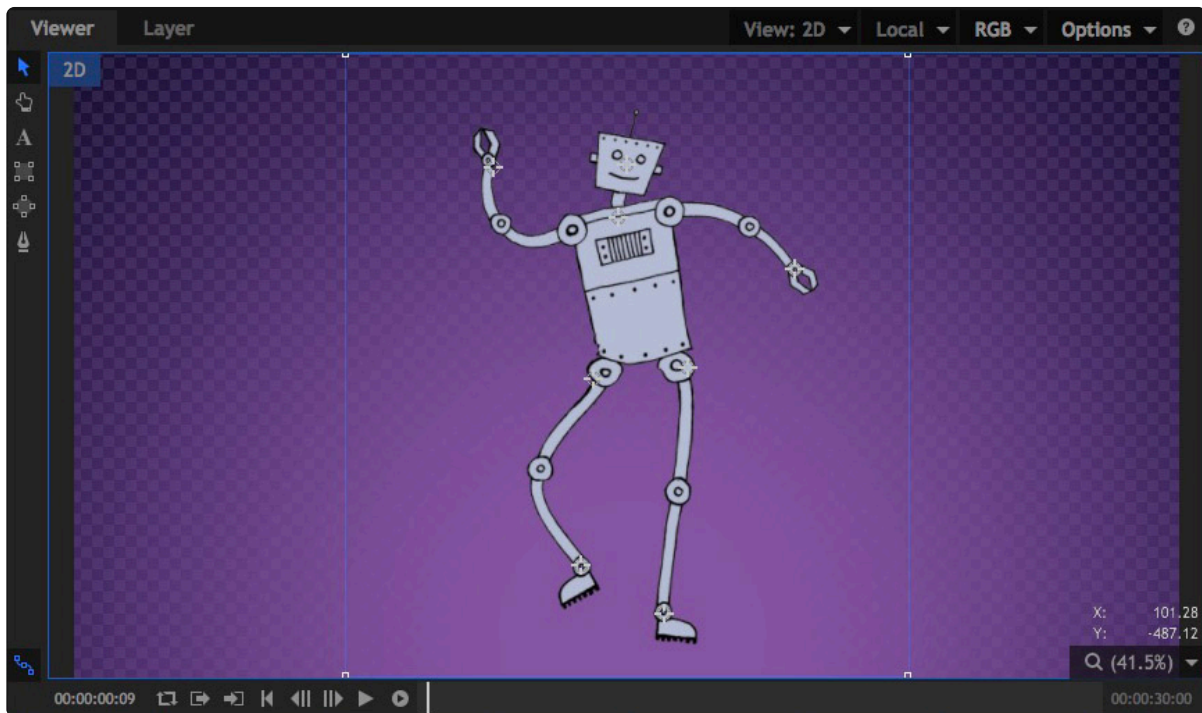
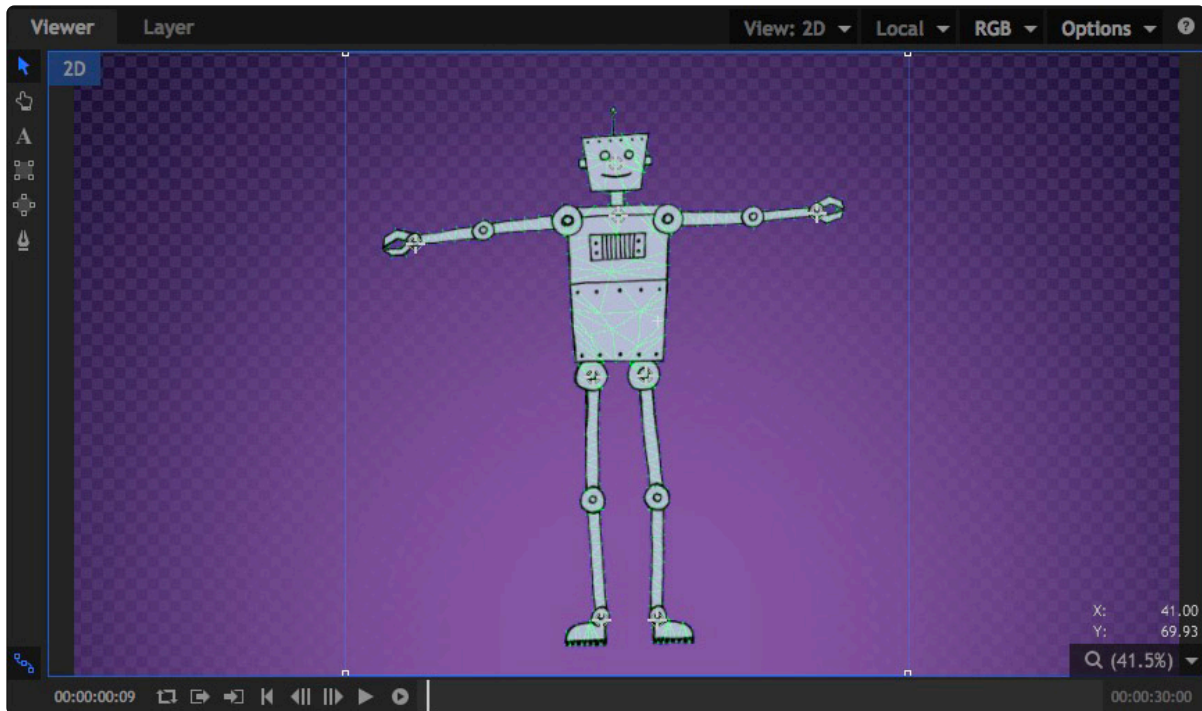
Creates a tiled, mosaic appearance by reducing the number of distinct pixels in the layer. The color values of all pixels within each block are averaged to determine the color value used for that block.



- **Preset:** Choose from a variety of predetermined configurations of the effect.
- **Horizontal Blocks:** Determines the number of horizontal blocks. Lower numbers create larger, more obvious blocks.
- **Vertical Blocks:** Determines the number of vertical blocks. Lower numbers create larger, more obvious blocks.

2.6.12. Puppet

The Puppet tool allows you to set up specific control points within your layer, then animate the position of each point to move or distort the layer's contents.



Using the Puppet tool

1. Add the puppet effect to your layer.
2. **Click** in the Viewer to add new control points. A new control point will be added at each location you

click.

3. **Drag** any existing point to a new location to distort the image beneath it.
4. If you wish to reposition a point without distorting the image, hold **Shift** while you **drag** the point. While shift is held, the mesh that is used to generate the distortion will be visible, and points can be repositioned without altering the distortion.

Controls

- **Mode:** The Mode changes automatically as you edit the effect in the Viewer. If you want to manually force a specific mode, you can do so here.
 - **Animate:** In Animate Mode the control points are pinned to the layer, and moving any control point will distort the layer accordingly. Note that keyframing must still be enabled for individual control point properties in order to change the values over time.
 - **Edit:** In Edit mode you can add points and change the position of existing points without affecting the source layer. The mesh is overlaid onto your image when Edit mode is active.

When Edit mode is selected, some additional controls appear, which allow you to fine tune the mesh used to distort the image.

- **Expansion:** Expands the boundaries of the mesh beyond the borders of the layer. If you get unwanted creasing along the edges of your layer when it is distorted, try increasing the expansion to smooth out the edges.
- **Tessellation:** Controls the size of the triangles that make up the mesh. Increasing tessellation creates more faces, for smoother curves in the distortion. Increased tessellation may also increase processing time.
- **Rigidity Map:** You can use a map to add rigidity to certain areas of the layer, and further control how it is distorted.

Control Points

You can create as many control points as necessary within the Puppet tool. Control points are numbered in the order in which they are created, and each control point will have two controls:

- **Position:** Identifies the exact position of the control point at the current frame, on the X and Y axes.
- **Z-Order:** Controls the depth order of the points. If your points are moved so that parts of the layer overlap, the Z order determines which point is in front. In overlapping areas, point with higher Z-order values will be rendered in front of points with lower values.

2.6.13. Smoke Distortion

Distorts your footage based on a procedurally generated fractal pattern. You can adjust the appearance of the distortion using the controls.



- **Distortion:** Adjusts the intensity of the distortion applied to the layer.
- **Scale:** Sets the scale of the distortion
- **Diffusion Bias:** Set the amount of the image that is affected by diffusion blurring. Increasing the setting will make the blur more prevalent.
- **Diffusion Strength:** Sets the strength of the blur in the areas affected by diffusion
- **Distortion Rotation:** Sets the angle in which the distortion is applied.
- **Distort Single Axis:** Enabling this option applies the distortion in a single direction. The specific angle used can be set with the Distortion Rotation setting above.

Animation

By default the Energy Distortion is animated. You can set the details of the movement within the effect here.

- **Wind Direction:** Sets the direction of the movement
- **Wind Speed:** Sets the speed of the movement along the axis determined in the Wind Direction, by altering the position of the noise. Higher values will create more movement in the distortion.
- **Noise Speed:** Sets the speed of the movement of the fractal noise the distortion is based on. This speed alters the shape of the noise, while the Wind Speed property affects its position.

Noise

- **Seed:** Acts as a randomizer for the shape of the noise. Each seed value sets a unique starting shape

for the procedurally generated noise.

- **Interpolation:** Provides options for how the noise is interpolated. Linear Interpolation uses the simplest path to connect points in the rectilinear grid the effect is based on. Cubic interpolation uses smoother paths to interpolate the grid. Neither option is better than the other, they just provide different options for the effect.

Transform

Multiple layers of fractal noise are combined to create the final noise that the distortion is based on. The Transform controls adjust the primary noise, while the Sub Settings alter the sub levels of noise that add detail to the distortion.

- **Position:** Sets the position of the primary fractal noise the distortion is based on.
- **Use Layer:** You can select another layer on your timeline, to parent the position of the distortion to that layer
- **Rotation:** Sets the rotation of the primary fractal noise
- **Axis Scale X:** Alters the aspect ratio of the primary fractal noise by changing its scale along the X axis. Higher values will stretch the distortion horizontally.
- **Axis Scale Y:** Alters the aspect ratio of the primary fractal noise by changing its scale along the Y axis. Higher values will stretch the distortion vertically.

Sub Settings

- **Sub Levels:** Sets the number of sub levels that are used to calculate the distortion. Higher levels create greater detail in the distortion.
- **Influence:** Controls the intensity with which the sub levels alter the primary noise.
- **Scale:** Sets the scale of the sub levels, thus impacting the size of the detail added by the additional sub levels.
- **Rotation:** Alters the angle of the sub levels which are laid over the primary noise.
- **Offset:** Sets the position of the sub levels in relation to the primary noise position.
- **Center Subscale:** Enabling this option links the center of all subscale layers, so they stay aligned when offset using the above control.

2.6.14. Twirl

Twists the layer around the effect's center point. The center point stays in place, while the pixels at the edge of the radius are distorted by the angle you choose.



- **Angle:** Sets the number of degrees by which the area inside the radius will be rotated.
- **Center:** By default the twirl is centered in the frame, but you can reposition the center if you wish.
 - **Position:** Sets the exact location of the effect center, using X and Y values.
 - **Use Layer:** Select any other layer on the timeline to use it's position as the center of the effect. When a layer is selected, the Position property above functions as an offset from the selected layer's position.
- **Radius:** Determines the distance from the center point to which the distortion will extend.
- **Wrap:** Controls how the distortion will be wrapped when it reaches the edge of the frame.
 - **No:** No wrapping is applied.
 - **Tiled:** A second identical copy of the image is used alongside the original to fill the wrapped area.
 - **Reflection:** A mirrored copy is used alongside the original to fill the wrapped area.

2.6.15. Waves

Creates a corrugated effect. You can also choose another layer as the displacement source and alter the lighting on the bright and dark sides of the wave.



- **Amplitude:** Sets the height from the peak of the waves to the bottom of the valley between waves.
- **Frequency:** Sets the distance from one peak to the next.
- **Angle:** Rotate the dial to define the angle, in degrees, at which the angle travels, from one peak to the next.
- **Displace Angle:** Distorts the position of the underlying image shown within the waves.
- **Center:** By default the effect is centered in the frame, but you can reposition the center if you wish.
 - **Position:** Sets the exact location of the effect center, using X and Y values.
 - **Use Layer:** Select any other layer on the timeline to use it's position as the center of the effect. When a layer is selected, the Position property above functions as an offset from the selected layer's position.
- **Phase Speed:** Adds movement to the waves in the direction of the Angle wheel above. Set the speed of the movement here.
- **Distance To Image:** The distance from the waves to the underlying image affects how the image is refracted through the waves. Higher value make the image more distant, and therefore smaller.
- **Wrap X:** Controls how the blank areas at the left and right edges of the frame will be handled, when the Distance To Image is increased.
 - **No:** No wrapping is applied, and the area is left blank.
 - **Tiled:** A second identical copy of the image is used alongside the original to fill the wrapped area.
 - **Reflect:** A mirrored copy is used alongside the original to fill the wrapped area.
- **Wrap Y:** Controls how the blank areas at the top and bottom edges of the frame will be handled, when the Distance To Image is increased.

- **No:** No wrapping is applied, and the area is left blank.
- **Tiled:** A second identical copy of the image is used above or below the original to fill the wrapped area.
- **Reflect:** A mirrored copy is used above or below the original to fill the wrapped area.
- **Illumination:** Gives the waves themselves a 3D appearance by shadowing the valleys between the waves.

Distortion Map

The waves effect can be limited to a specific area of the frame by using another layer as a distortion map

- **Source Layer:** Choose any other layer on the timeline to be used as a source for the distortion.
- **Blur:** Softens the detail of the distortion generated from the source layer.
- **Channel:** Choose the channel of the source layer which will be used as a map to generate the distortion.
- **Invert:** Reverses the values in the selected channel to invert the distortion.

2.6.16. Witness Protection

This is a quick way to obscure an item within a shot, such as a face, number plate or product logo. You can choose between blur or pixelate styles.



- **Preset:** Choose from a variety of presets that give you different looks for the effect.
- **Size:** Sets the diameter of the area that will be distorted.
- **Edge Softness:** Feathers the edges so they blend softly into the rest of the frame.

Shape

- **Scale X:** Adjusts the width of the distortion area.
- **Scale Y:** Adjusts the height of the distortion area.
- **Rotation:** Rotates the area by the number of degrees to which the dial is moved.

Position

By default the effect is centered in the frame, but you can reposition the center if you wish.

- **Center:** Sets the exact location of the effect center, using X and Y values.
- **Use Layer:** Select any other layer on the timeline to use its position as the center of the effect. When a layer is selected, the Center property above functions as an offset from the selected layer's position.
- **Method:** Choose how the detail within the distortion area is obscured.
 - **Pixelate:** Creates a pixelated mosaic of the area, by dividing it into large blocks and filling each block with the average color of all pixels it contains. Selecting this option reveals the Pixelate controls below.
 - **Blur:** Applies a blur within the distortion area. Selecting this option reveals the Blur controls

below.

Pixelate

- **Block Size:** Sets the size, in pixels, of each block within the pixelation.
- **Randomize Source:** Scrambles the position of the blocks to further obscure their contents.

Blur

- **Radius:** Sets the radius of the blur. Larger numbers hide the details to a greater extent.

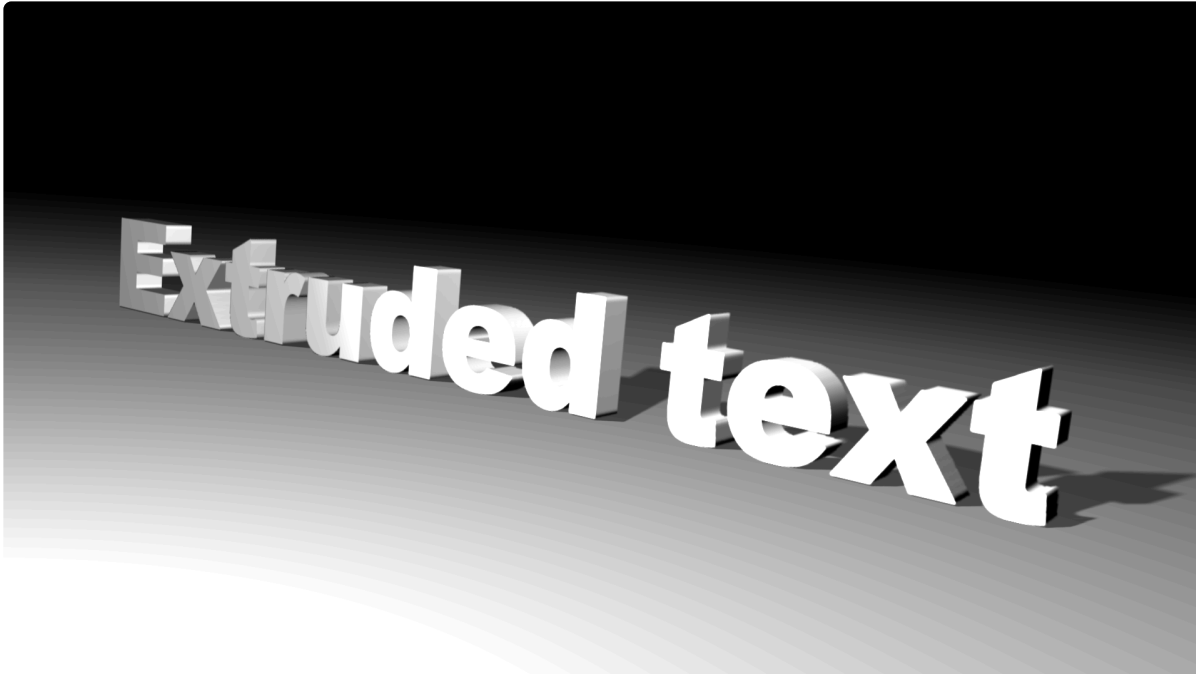
2.7. Generate

The Generate effects are used to create new visual elements. These can be applied to layers like any other effect, but rather than modifying the contents of the layer, they create entirely new contents, which can then be used on their own or combined with the original contents.

- [3D Extrusion](#)
- [Animated Lasers](#)
- [Audio Spectrum](#)
- [Audio Waveform](#)
- [Auto Volumetrics](#)
- [Caustics](#)
- [Clone](#)
- [Clouds](#)
- [Cosmos](#)
- [Dimension Rift](#)
- [Distance Field](#)
- [Drop Shadow](#)
- [Electro](#)
- [End Credits Crawl](#)
- [Fractal Noise](#)
- [Grid](#)
- [Hyperdrive](#)
- [Letterbox](#)
- [Lightsword \(2-Point Auto\)](#)
- [Lightsword \(4-Point Manual\)](#)
- [Lightsword \(Glow Only\)](#)
- [Lightsword Ultra \(2-Point Auto\)](#)
- [Lightsword Ultra \(4-Point Manual\)](#)
- [Lightsword Ultra \(Glow Only\)](#)
- [Neon Path](#)
- [PiP](#)
- [Pond Ripple](#)
- [Pulp Sci-fi Title Crawl](#)
- [Radio Waves](#)
- [Reflection](#)
- [Sphere](#)
- [Split Screen Masking](#)
- [Tile](#)
- [Timecode](#)

2.7.1. 3D Extrusion

Extruding creates the appearance of 3D depth in a flat 2D layer. This is often used to enhance titles but can be used on any layer.



3D extrusion can use the 3D lights in your scene. The material behavior of the extrusion can be adjusted in the Illumination property group. Another layer can be used as an environment map for extruded text. This is effective for creating reflective text or for inheriting some of the lighting in a background plate.





For 3D extrusion to cast shadows the layer must also be set to 3D.

Position

Extrusion is a 2D effect, and can be positioned directly within 2D space. By selecting a 3D layer in the **Transform From** control, however, you can simulate the appearance of a 3D extrusion, and position the layer as if it were 3D.

- **Transform From:** Use this menu to select another layer on the timeline and use its position to control the extrusion's position. When a 3D layer is selected, all three axes of the parent layer's position are factored into positioning the extrusion.
- **Position:** Sets the position of the effect, if there is no layer selected above. When a Layer is selected in the Transform From property, Position reflects the offset of the extrusion from the parent layer's location.
- **Z Shift:** Simulates shifting the effect away from or toward the virtual camera.

Rotation

- **Rotation X:** Rotates the extrusion around an axis running left to right.
- **Rotation Y:** Rotates the extrusion around an axis running top to bottom.
- **Rotation Z:** Rotates the extrusion around an axis running from front to back.
- **Depth:** Defines the depth of the extrusion. Higher values create a wider extruded edge on the layer.
- **Quality:** Set the quality used to render the extrusion.
 - **Normal:** This option renders the fastest, at the expense of some finer detail. It is useful for keeping performance fast while setting things up
 - **Multisampled:** This option provides a balance between normal and supersampled.
 - **Supersampled:** This option gives the highest quality, but may take slightly longer to render. It is the best option for final rendering.

Depth of Field

- **Enable:** Turns on depth of field rendering, so you can control the distance from the camera at which the extrusion will be in focus
- **DoF Settings:** Choose what camera data will be used to calculate the depth of field.
 - **Active Camera:** uses the active camera in your composite shot, so the depth of field applied to the extrusion matches the depth of field of all other layers in the scene. If you already have a camera on your timeline, this is often the best option to choose.
 - **Custom:** Allows you to define the specific camera values used to render the depth of field on the extrusion effect. This option is especially useful if you don't have a 3D camera on your timeline. Choosing custom opens the following three properties.
- **Aperture:** Defines the size of the virtual camera's aperture. Higher values reduce the depth of field.
- **Focus Distance:** Sets the exact distance, in pixels, from the camera position to perfect focus.
- **Blur:** Controls the amount of blur applied to the areas outside the field of focus.

Illumination

- **Type:** Select the lighting option that will be used to illuminate the extrusion.
 - **Comp Lights:** Uses all Light layers present in the composite shot timeline.
 - **Selected Lights:** Allows you to specify which lights will illuminate the extrusion. When this option is selected, four menus will appear that allow you to select up to four specific light layers from the timeline.

Material

- **Ambient:** Determines how much the surface of the extrusion is illuminated by ambient lights.
- **Diffuse:** Determines how much the surface of the extrusion is illuminated by point, directional and spot lights.
- **Specular:** Adjusts the strength of specular highlights when illuminated by point, directional and spot lights. A low specular value will create a more matte surface.
- **Shininess:** Adjusts the size of the specular highlight. A low shininess creates a large, diffuse highlight while a high value creates a smaller, defined highlight.

Environment Map

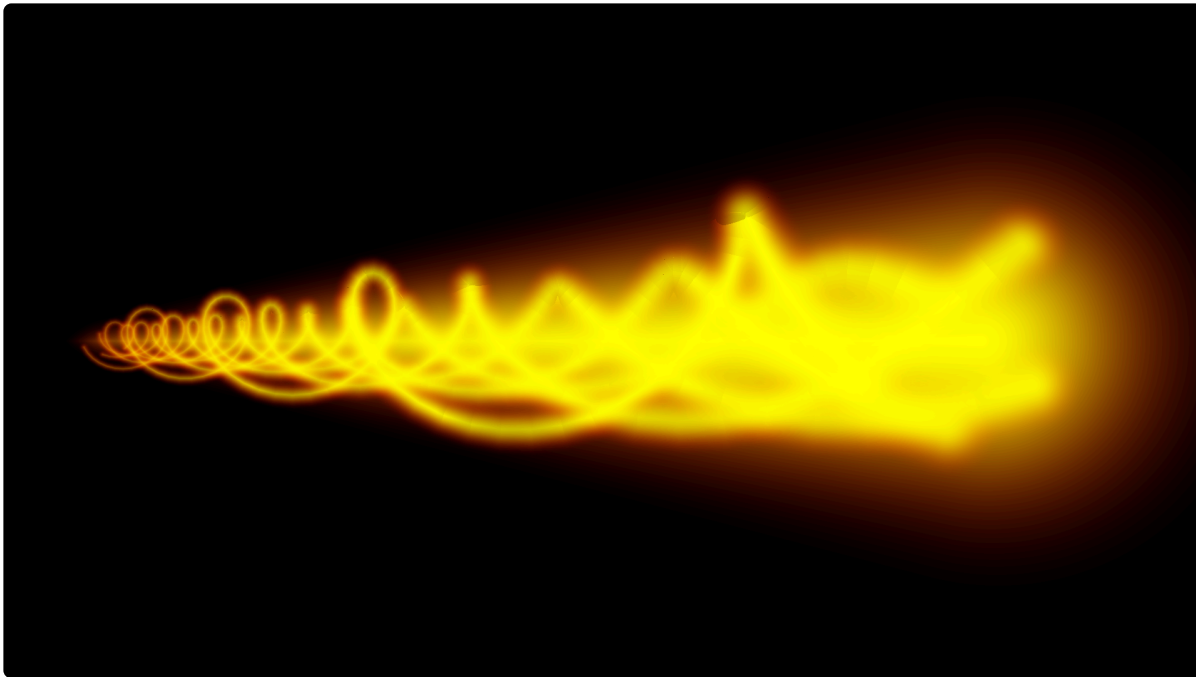
- **Layer:** Choose any layer from the timeline to be used as the source of the environment map. The surface of the extrusion will be illuminated and display reflections as if it was surrounded by the selected layer.
- **Pre-blur:** Set the amount of blur applied to the layer before the reflections are calculated. Softening the reflections with blur tends to give more realistic results in many cases.
- **Amount:** Controls the overall strength of the environment map on the surface of the extrusion.
- **Angle Dependency:** Modifies the angle at which the environment map is reflected. Lower values use more of the color from the environment map, while higher values tend to brighten the reflection using lighter colors.
- **Texture Scale:** Adjusts the size of the reflected image on the extruded surface.
- **Texture Ratio:** Controls the X ratio of the reflection. Values lower than 1 compress the reflected image from left to right. Values higher than 1 stretch the image from left to right.

Transform

- **X Rotation:** Rotates the reflected environment map image around the X axis, without affecting the rotation of the actual extrusion.
- **Y Rotation:** Rotates the reflected environment map image around the Y axis, without affecting the rotation of the actual extrusion.
- **Z Rotation:** Rotates the reflected environment map image around the Z axis, without affecting the rotation of the actual extrusion.

2.7.2. Animated Lasers

Designed to create laser bolts which travel from one point to another. The lasers can be constructed from multiple lines, which can be further manipulated into spirals, expanding the effect to also be useful in motion graphics animation.



The laser has two position **points** which define the path along which the laser will travel. These interact with the **Laser Length** and **Location** properties, which define the laser bolt's location between the two points.

- **Start Point:** Sets the origin point of the path along which the laser will travel.
 - **Use Layer:** Select any other layer on the timeline to use its position as the origin of the laser path. A common example is to select a point layer which contains the tracking data for the muzzle of a prop. When a layer is selected, the Position property below functions as an offset from the selected layer's position.
 - **Position:** Defines the location of the point from which the laser originates, on the X axis (horizontal) and Y axis (vertical). When the **Use Layer** option (above) is used, this position value serves as an offset from the position of the selected layer.
 - **Depth:** Adjusts the perspective of the effect along its path. Reduce the depth to make the origin of the laser path appear to be farther away from the camera. Increase the depth to make the origin appear to be closer to the camera.
- **End Point:** Sets the target point toward which the laser will travel.
 - **Use Layer:** Select any other layer on the timeline to use its position as the target of the laser path. When a layer is selected, the Position property below functions as an offset from the selected layer's position.
 - **Position:** Defines the location of the point from which the laser originates, on the X axis (horizontal) and Y axis (vertical). When the **Use Layer** option (above) is used, this position

value serves as an offset from the position of the selected layer.

- **Depth:** Adjusts the perspective of the effect along its path. Reduce the depth to make the target position of the laser path appear to be farther away from the camera. Increase the depth to make the target position appear to be closer to the camera.
- **Laser Length:** Defines the length of the laser bolt, in pixels.
- **Location:** Adjusts the position of the laser bolt, along the path from the start point to the end point. Lower values move it closer to the start point, while higher values move it closer to the end point. Keyframing the Location value allows you to animate the laser's movement along the path.
- **Number of Beams:** The effect includes one beam by default, but you can add up to 10 unique beams to build more complex effects. Each beam will have a section of numbered Beam controls below.

Beam 1 (duplicate controls will be listed for each beam number)

- **Core Color:** Choose a color for the laser core. You can use the eyedropper to choose a color from the layer, or click the swatch to open a color picker and choose any color you prefer. You can also manually enter the color values for the red, green, and blue channels.
- **Glow Color:** Choose a color for the laser glow which surrounds the core. Usually the glow should be a richer, more saturated color than the core, but you can choose any color you need. You can use the eyedropper to choose a color from the layer, or click the swatch to open a color picker and choose any color you prefer. You can also manually enter the color values for the red, green, and blue channels.
- **Brightness:** Allows you to reduce the brightness of the beam.
- **Width:** Defines the width of the beam, in pixels.
- **Length:** Defines the length of the beam, as a percentage of the **Laser Length** value. When working with multiple beams, adjusting the relative length of each beam provides a massive amount of control for building complex effects.
- **Position Shift:** Adjusts the position of the beam relative to the **Location** value.
- **Tail Scale:** Sets the width of the tail of the beam, as a percentage of the **Width** value above.
- **Edge Size:** Adjusts the feather applied to the edges.
- **Color Shift:** Adjusts the balance between the core and glow colors. Decreasing the value makes the core color more prominent, while increasing the value introduces more of the glow color.
- **Tail Color Shift:** Adjusts the balance between the core and glow colors in the tail portion of the beam. Decreasing the value makes the core color more prominent, while increasing the value introduces more of the glow color.
- **Brightness Noise:** Breaks up the beam by introducing a noise texture, which makes small random bits of the beam less visible. This can help make it feel more organic.
- **Color Mix Noise:** Breaks up the beam and allows the glow color to show through the core, based on a randomized noise pattern. The **Noise Scale** property in the General controls adjusts the size of the noise used.
- **Beam Blend:** Choose the blend mode used to combine the beam with the underlying layer. The **Noise Scale** property in the General controls adjusts the size of the noise used.
- **Spiral:** Each beam has associated Spiral properties. These are used to twist the beam's straight line into curving spirals.
 - **Radius:** Sets the radius around which the beam is spiraled.
 - **Radius Shrink:** Tapers the radius from the start point to the end point.

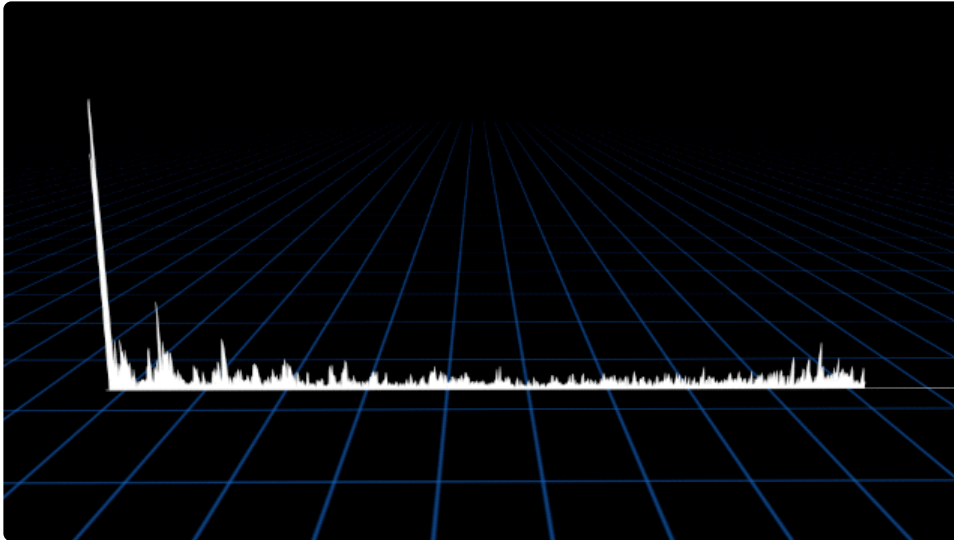
- **Path Angle:** Increasing this value increases the number of rotations present in the beam.
- **Rotation:** Adjusts the specific rotation of the beam around the path.
- **Rotation Speed:** Animates rotation into the beam, at the speed you choose.

Global Controls

- **Brightness:** Adjusts the overall brightness of the entire effect, including all beams that are present.
- **Rotation:** Rotates the entire effect, made up of the combination of all beams.
- **Rotation Speed:** Animates rotation into the entire combined effect, at the speed you choose.
- **Noise Scale:** Modifies the size of the noise used to break up any beams that include **Brightness Noise** or **Color Mix Noise** settings.

2.7.3. Audio Spectrum

The audio spectrum effect generates spectrum patterns based on a chosen audio layer. The effect is akin to the readout on a graphic equalizer. Extensive controls allow you to fully customize the appearance of the spectrum.



* This effect requires a layer containing audio to function correctly.

Audio Input

- **Audio Layer:** Choose any layer containing audio, to use its audio as the source for generating the spectrum. The effect examines the audio frequencies present in the selected layer, and generates a spectrum that displays those frequencies.
- **Channel:** Select the audio channel from the source layer that will be used to generate the spectrum.
 - **Left:** Uses the left audio channel from the layer.
 - **Right:** Uses the right audio channel from the layer.
 - **Average:** Combines the values from the left and right channels then divides by two, and uses that average value.
- **Start Frequency:** Sets the lowest frequency that will be factored into the effect.
- **End Frequency:** Sets the highest frequency that will be factored into the effect.
- **Duration:** Sets the duration for which each sample will be displayed before it is updated from the source audio.
- **Offset:** Allows you to shift the visuals through time in relation to the source audio. Negative values will cause the visuals to appear after their corresponding audio. Positive values will cause the visuals to appear before their corresponding audio.
- **Sampling:** Controls the number of samples displayed in the visual spectrum.
 - **Adaptive:** Evaluates the audio track, and determines how many samples to use based on the contents of the audio.

- **Custom:** Allows you to specify the exact number of samples used, using the **Number of Samples** slider that appears when this option is selected.

Audio Start

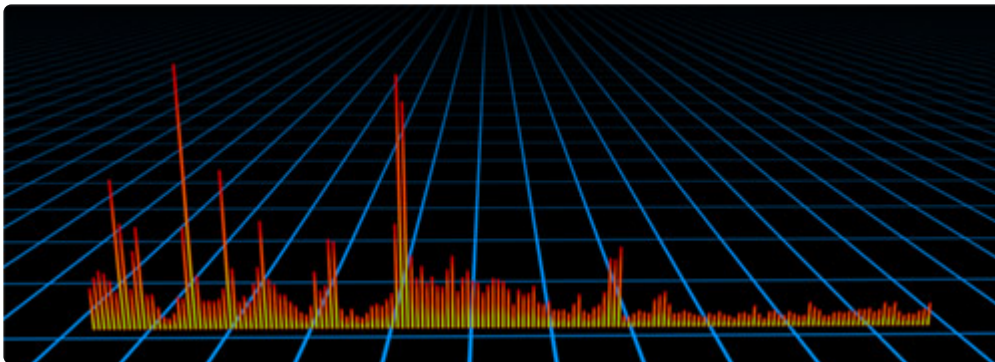
- **Position:** Defines the origin point of the spectrum effect, on the low end of the spectrum.
- **Use Layer:** Select another layer from the timeline using this menu, to use the selected layer's position to control the start position of the spectrum. When a layer is selected, the Position property above functions as an offset from the parent layer's position.

Audio End

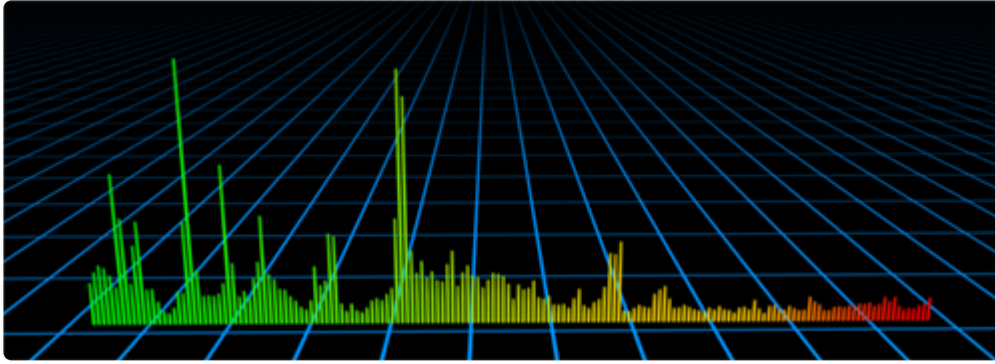
- **Position:** Defines the origin point of the spectrum effect, on the high end of the spectrum.
- **Use Layer:** Select another layer from the timeline using this menu, to use the selected layer's position to control the end position of the spectrum. When a layer is selected, the Position property above functions as an offset from the parent layer's position.

Colors

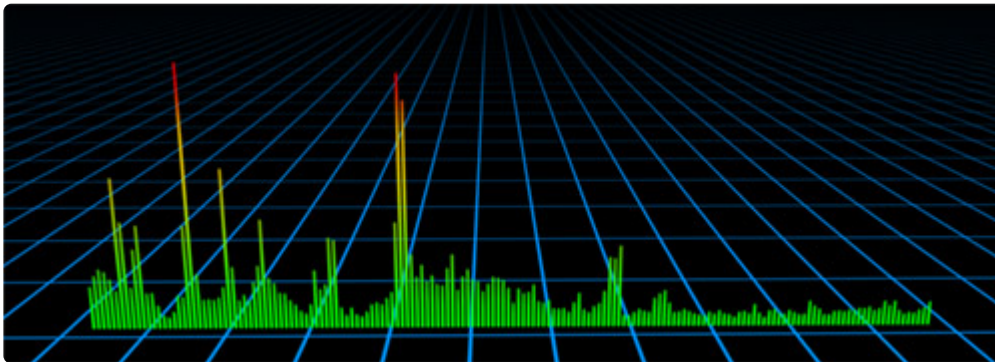
- **Preset:** Choose from one of many built-in presets. Presets can be used as-is, or serve as a starting point for further adjustment of settings.
- **Interpolation:** Controls how the colors are mapped onto the effect. The following three examples all use the same gradient from green to yellow to red, so you can see the difference in each interpolation method.
 - **Distance:** Maps the color gradient vertically onto the total height of each sample of the spectrum. As the height of each sample changes, the length of the gradient will shift to match the height.



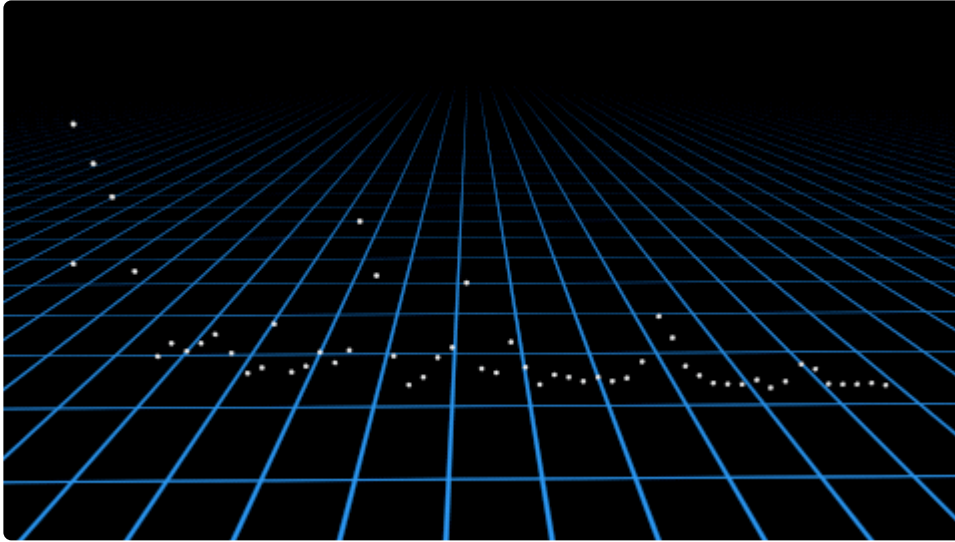
- **Time:** Maps the color gradient horizontally across the entire spectrum effect, starting at the start point, and ending at the end point.



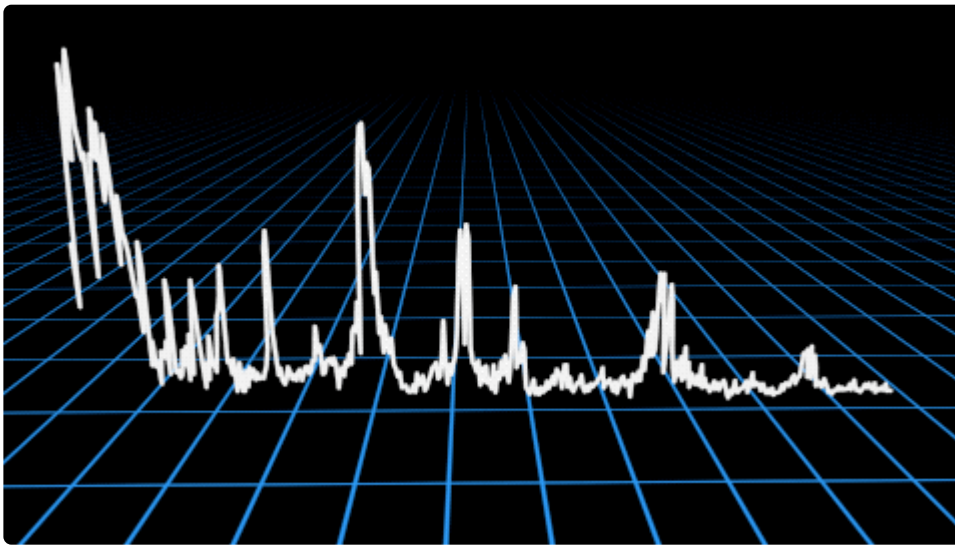
- **Amplitude:** Maps the color gradient vertically onto the total height of the spectrum effect, so the position of each color in the gradient is fixed, and the samples move through them as their height changes.



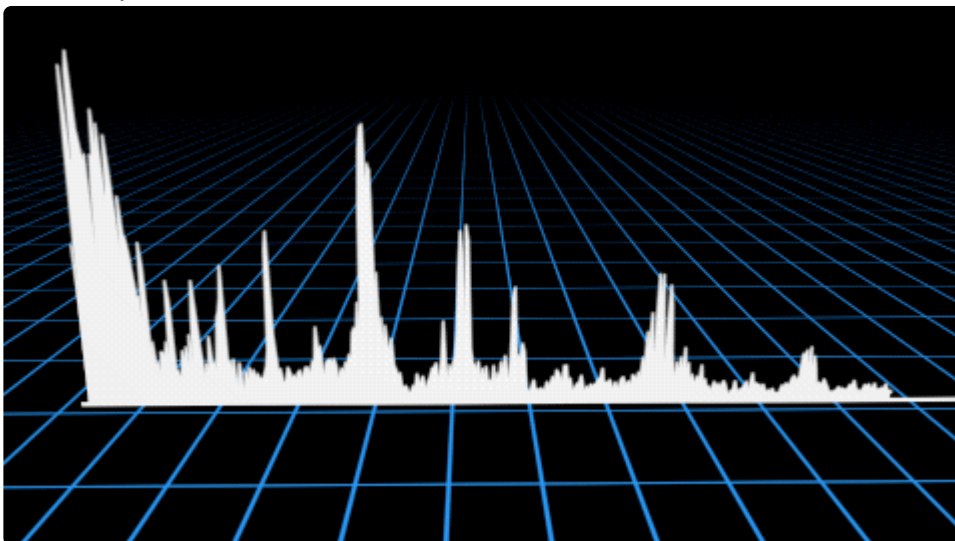
- **Number of Colors:** Sets the number of different colors used to create the gradient. Separate numbered color controls will be displayed below for as many colors as you select here.
- **Color Controls (Numbered)**
 - **Radius:** Controls the position of the color's center along the total length of the gradient. A value of 0.00 places it all the way at the start position, and a value of 1.00 placed it all the way at the end position.
 - **Color:** Choose a color. You can use the eyedropper to choose a color from the layer, or click the swatch to open a color picker and choose any color you prefer. You can also manually enter the color values for the red, green, and blue channels.
 - **Alpha:** Sets the transparency of the color. 0.00 is completely transparent, and 1.00 is completely opaque.
- **Height:** Defines the overall height of the spectrum, in pixels.
- **Thickness:** Defines the thickness of each visual sample. Lower values give a finer degree of detail, while higher values will use fewer points to generate the visual spectrum.
- **Render Mode:** Choose how the spectrum is drawn. Each of the following examples uses the exact same audio input, so you can see how each option differs from the others.
 - **Points:** Only the point marking the top of each sample is drawn.



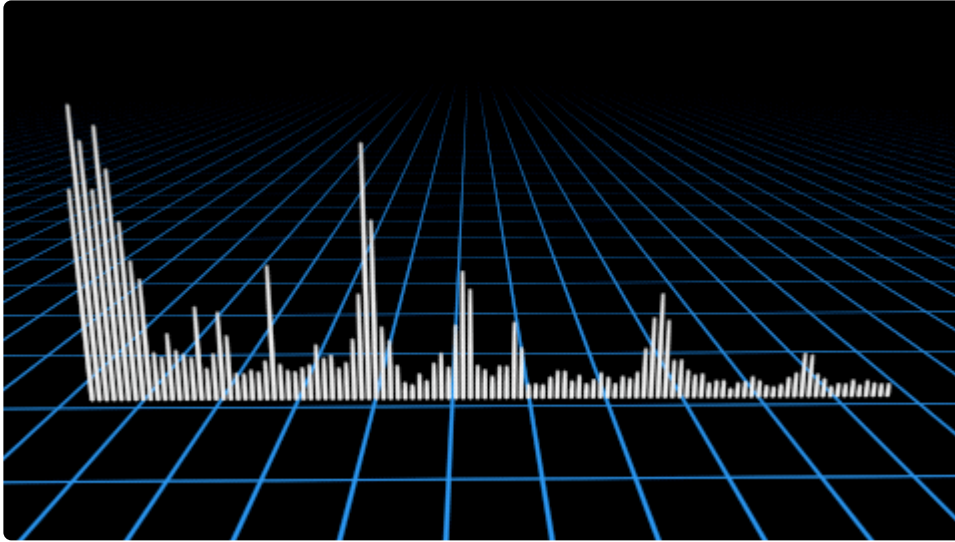
- **Lines:** A solid line is drawn, connecting each sample to the samples on either side of it.



- **Fill:** A baseline is combined with a solid line connecting all sample points, and filled to create a solid shape.

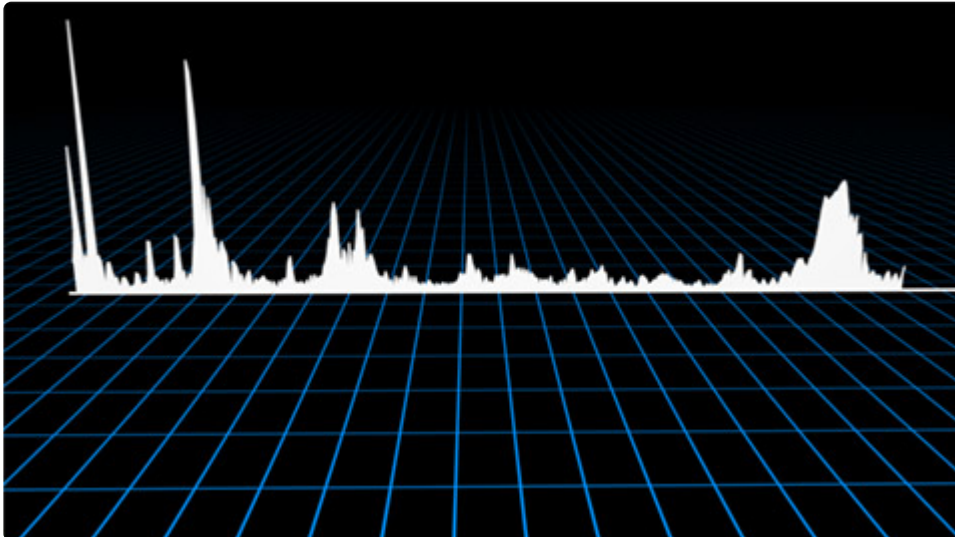


- **Bar Graph:** Each sample is drawn as an individual vertical line.

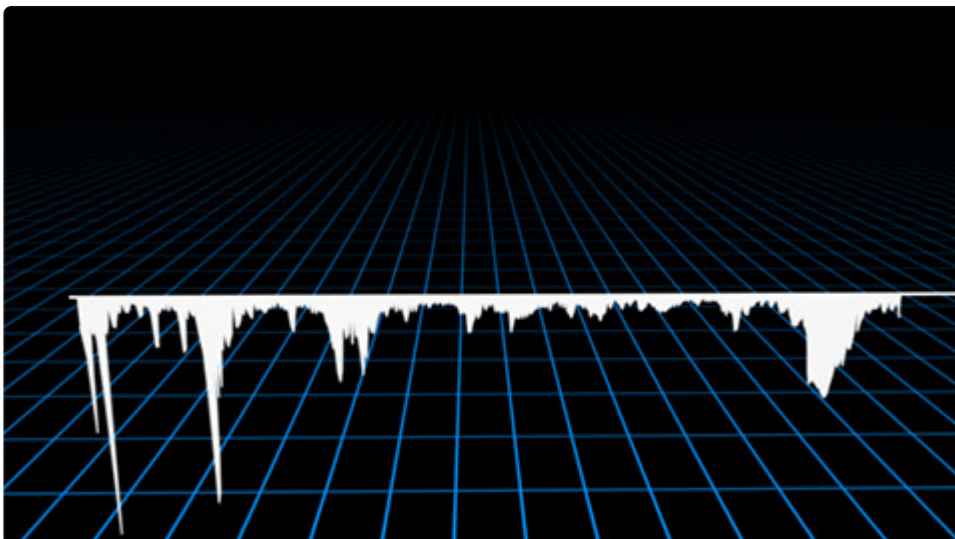


- **Amplitude Transform:**

- **None:** The default option. Increasing audio levels move upward from the baseline.

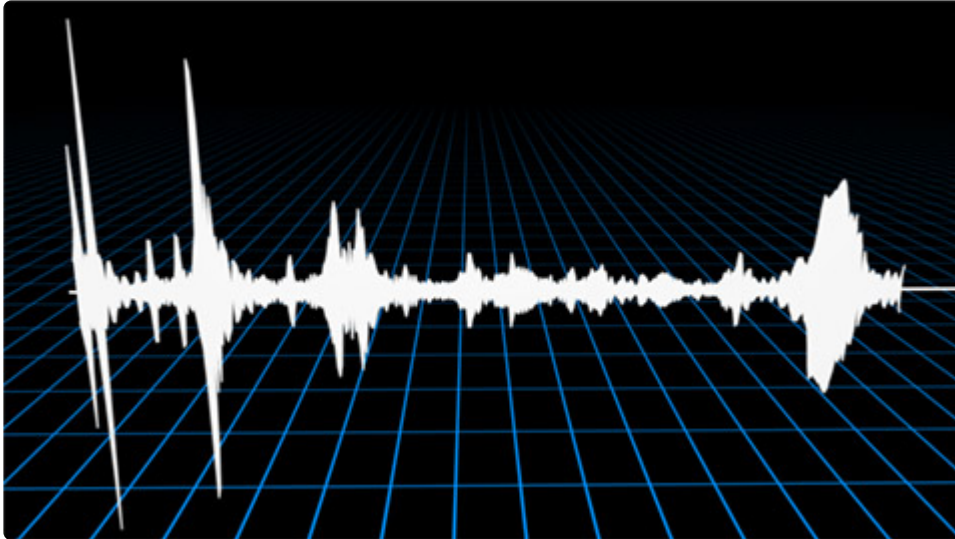


- **Flip:** Flips the effect upside down, so increasing audio levels move downward from the baseline.



- **Mirror:** Combines the original and flipped effects, so increasing audio levels move both upward

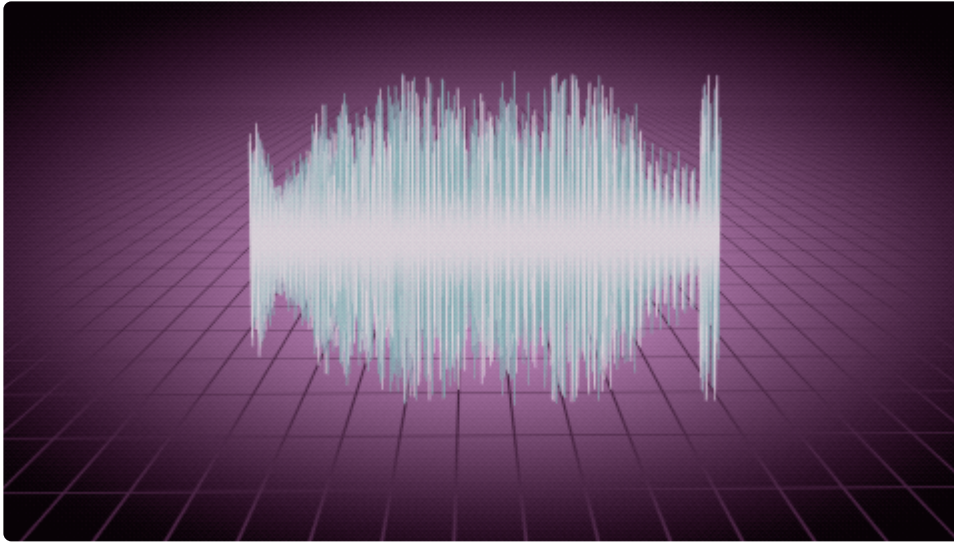
and downward from the baseline, creating a symmetrical effect.



- **Blend:** Controls how the effect is combined with the contents of the layer it is applied to.

2.7.4. Audio Waveform

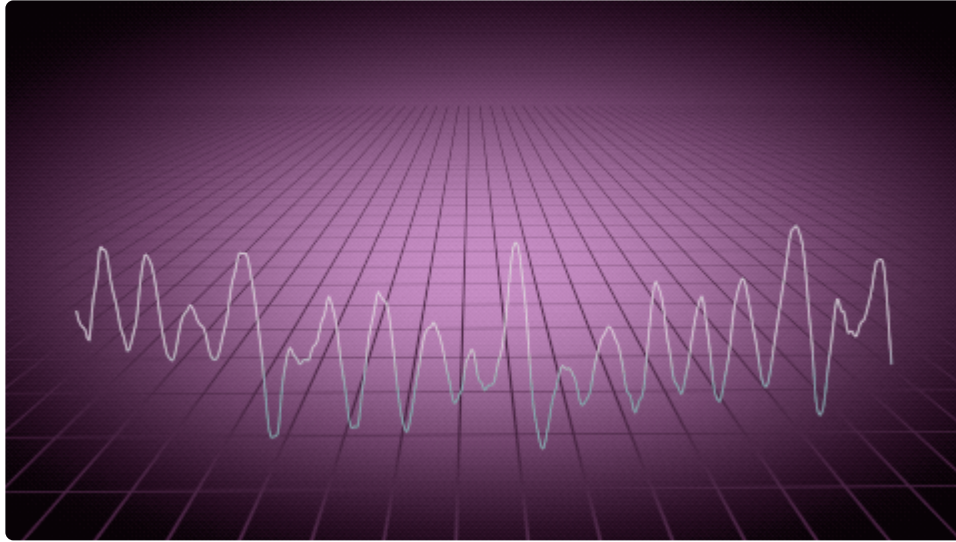
Generate waveform patterns based on an audio layer. The waveform scrolls along a line, whose position is determined using end points, and its color and appearance is fully customizable.



✿ Requires a layer containing audio to function correctly.

Audio Input

- **Audio Layer:** Choose any layer containing audio, to use its audio as the source for generating the waveform. The effect examines the audio levels and frequencies present in the selected layer, and generates a waveform that displays that data.
- **Channel:** Select the audio channel from the source layer that will be used to generate the waveform.
 - **Left:** Uses the left audio channel from the layer.
 - **Right:** Uses the right audio channel from the layer.
 - **Average:** Combines the values from the left and right channels then divides by two, and uses that average value.
- **Duration:** Sets the duration of the source file which will be visible at any given time. This will also affect the speed at which the waveform scrolls, with lower values creating faster movement. At very low values, you will see more frantic movement, rather than a recognizable waveform. In this example, the Duration is set to 10 ms.



- **Offset:** Allows you to shift the visuals through time in relation to the source audio. Negative values will cause the visuals to appear after their corresponding audio. Positive values will cause the visuals to appear before their corresponding audio.
- **Sampling:** Controls the number of samples displayed in the visual spectrum.
 - **Adaptive:** Evaluates the audio track, and determines how many samples to use based on the contents of the audio.
 - **Custom:** Allows you to specify the exact number of samples used, using the **Number of Samples** slider that appears when this option is selected.

Audio Start

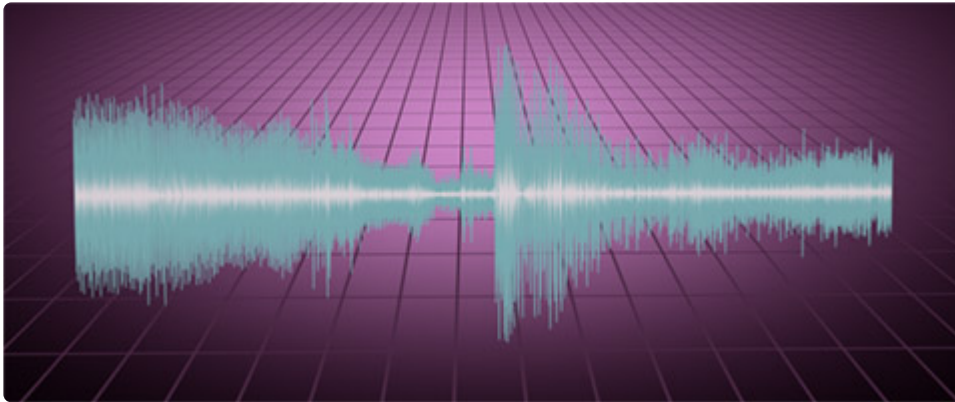
- **Position:** Defines the origin point of the waveform effect toward which the waveform will scroll.
- **Use Layer:** Select another layer from the timeline using this menu, to use the selected layer's position to control the start position of the waveform. When a layer is selected, the Position property above functions as an offset from the parent layer's position.

Audio End

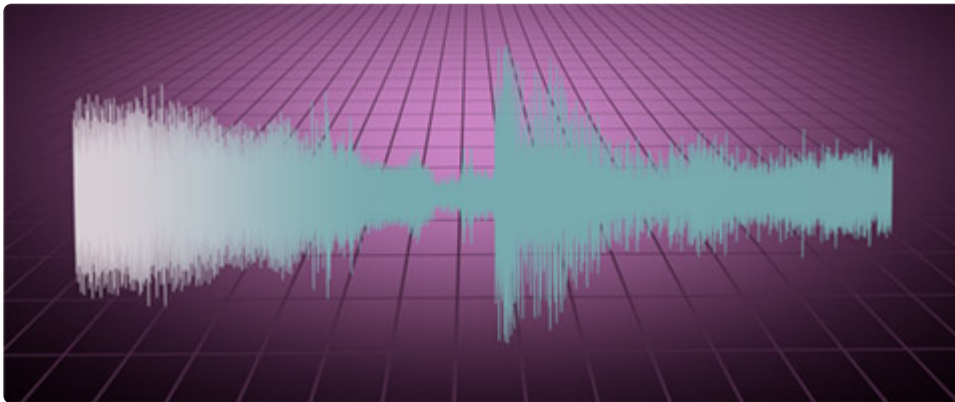
- **Position:** Defines the origin point of the spectrum effect from which the waveform will scroll.
- **Use Layer:** Select another layer from the timeline using this menu, to use the selected layer's position to control the end position of the waveform. When a layer is selected, the Position property above functions as an offset from the parent layer's position.

Colors

- **Preset:** Choose from one of many built-in presets. Presets can be used as-is, or serve as a starting point for further adjustment of settings.
- **Interpolation:** Controls how the colors are mapped onto the effect. The following three examples all use the same gradient from white to teal, so you can see the difference in each interpolation method.
 - **Distance:** Maps the color gradient vertically onto the total height of each sample of the spectrum. As the height of each sample changes, the length of the gradient will shift to match the height.



- **Time:** Maps the color gradient horizontally across the entire spectrum effect, starting at the start point, and ending at the end point.



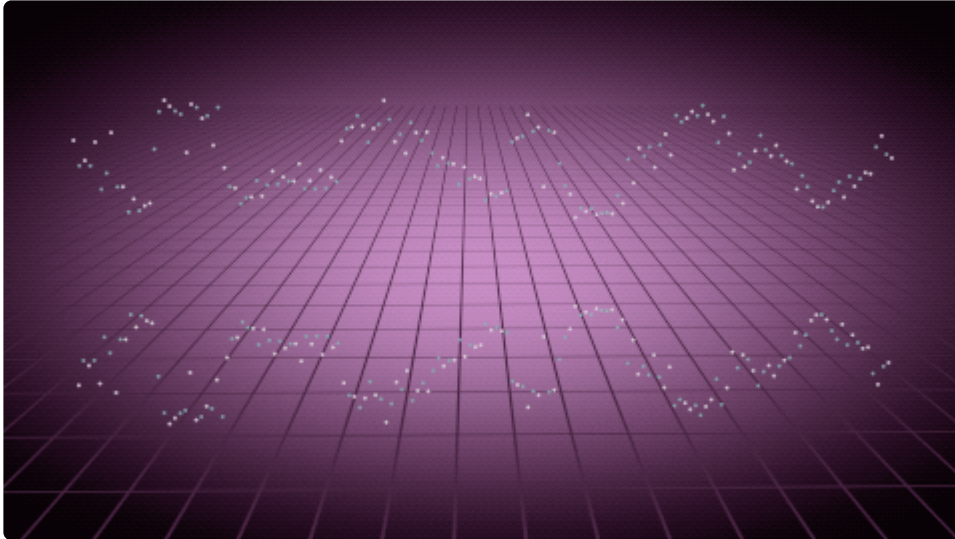
- **Amplitude:** Maps the color gradient vertically onto the total height of the spectrum effect, so the position of each color in the gradient is fixed, and the samples move through them as their height changes.



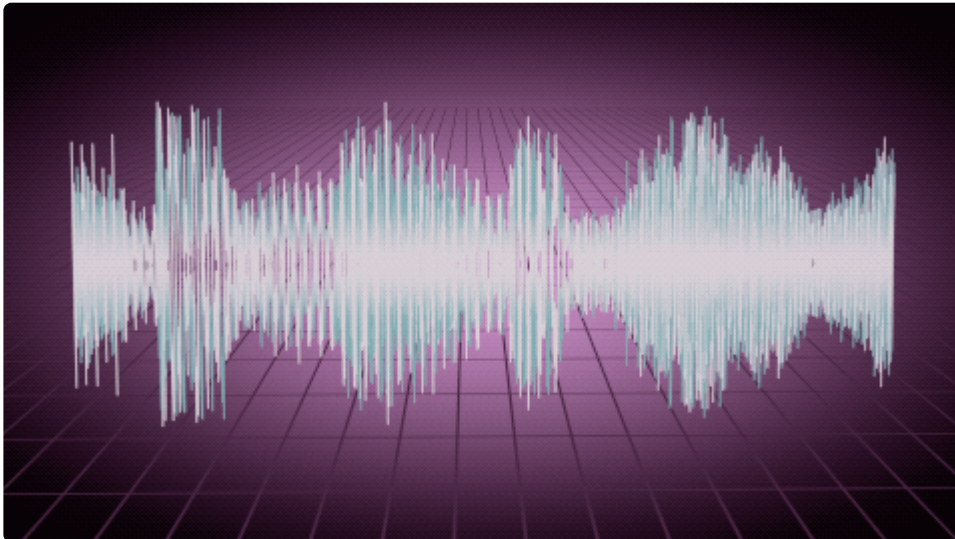
- **Number of Colors:** Sets the number of different colors used to create the gradient. Separate numbered color controls will be displayed below for as many colors as you select here.
- **Color Controls (Numbered)**
 - **Radius:** Controls the position of the color's center along the total length of the gradient. A value of 0.00 places it all the way at the start position, and a value of 1.00 places it all the way at the end position.
 - **Color:** Choose a color. You can use the eyedropper to choose a color from the layer, or click the swatch to open a color picker and choose any color you prefer. You can also manually enter the color values for the red, green, and blue channels.
 - **Alpha:** Sets the transparency of the color. 0.00 is completely transparent, and 1.00 is

completely opaque.

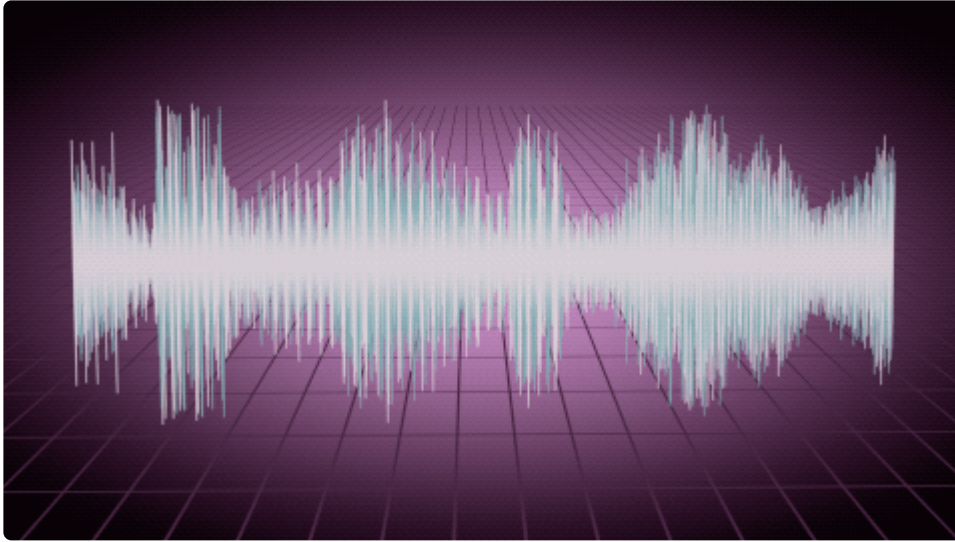
- **Height:** Defines the overall height of the spectrum, in pixels.
- **Thickness:** Defines the thickness of each visual sample. Lower values give a finer degree of detail, while higher values will use fewer points to generate the visual spectrum.
- **Render Mode:** Choose how the spectrum is drawn. Each of the following examples uses the exact same audio input, so you can see how each option differs from the others.
 - **Points:** Only the point marking the top of each sample is drawn.



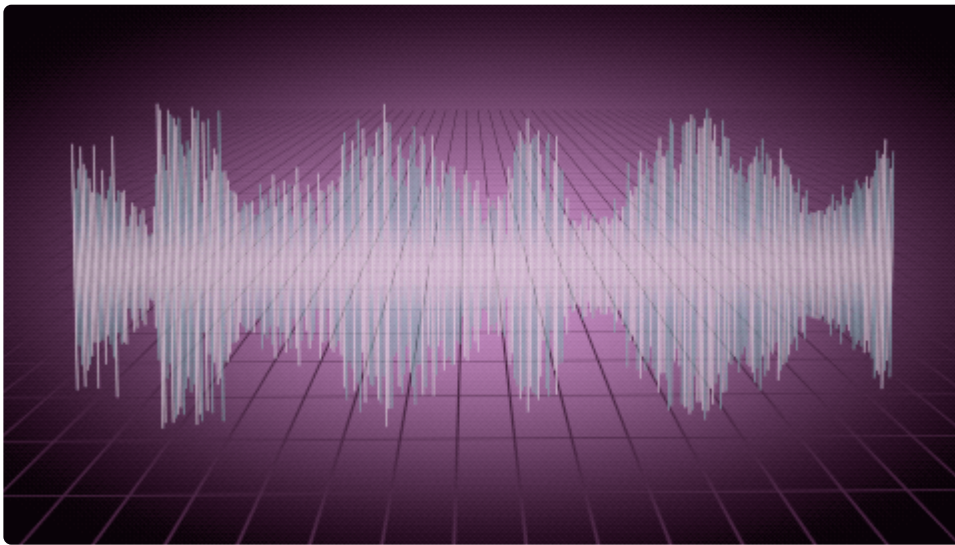
- **Lines:** A solid line is drawn, connecting each sample to the samples on either side of it.



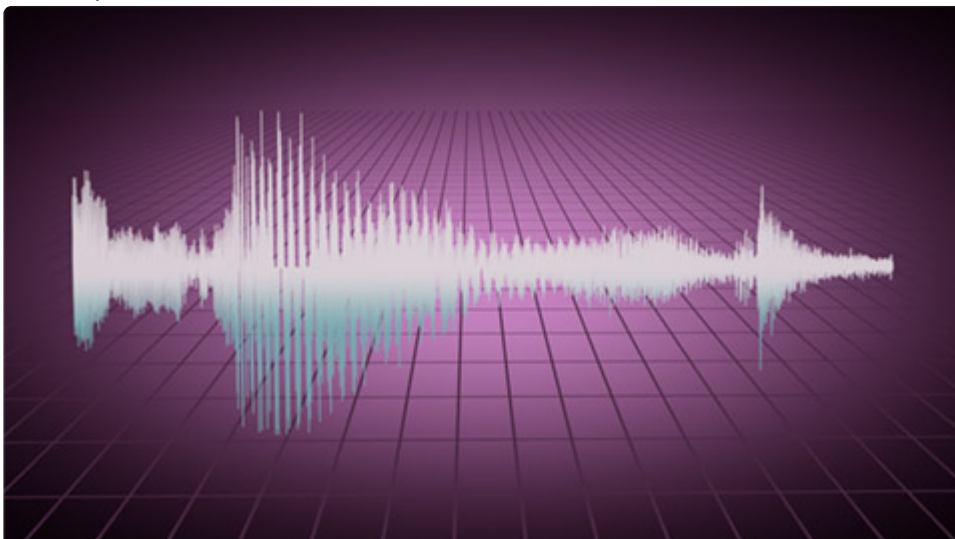
- **Fill:** A baseline is combined with a solid line connecting all sample points, and filled to create a solid shape.



- **Bar Graph:** Each sample is drawn as an individual vertical line.

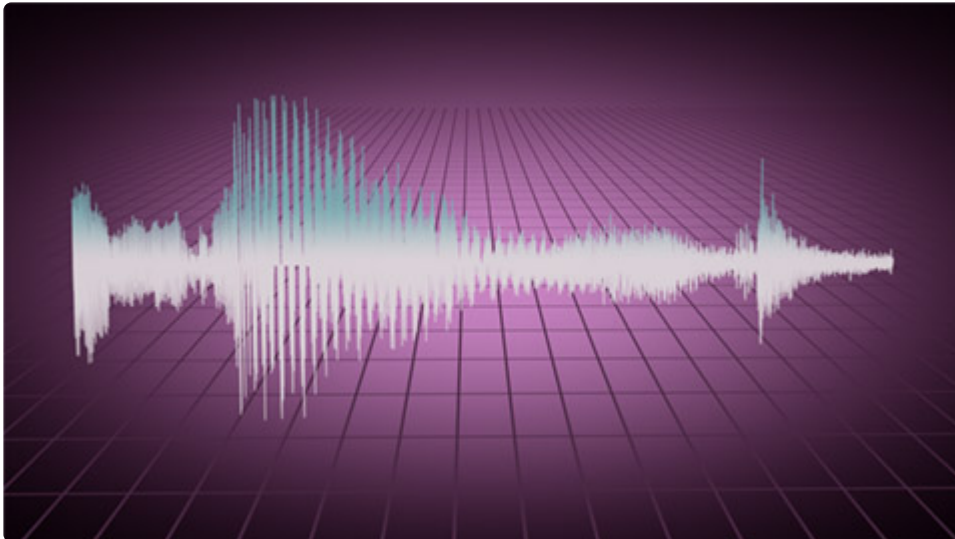


- **Amplitude Transform:** Controls how the color gradient is mapped onto the effect.
 - **None:** The default option. The color radius is mapped from 0.00 at the center line, to 1.00 at the lowest point of the waveform.

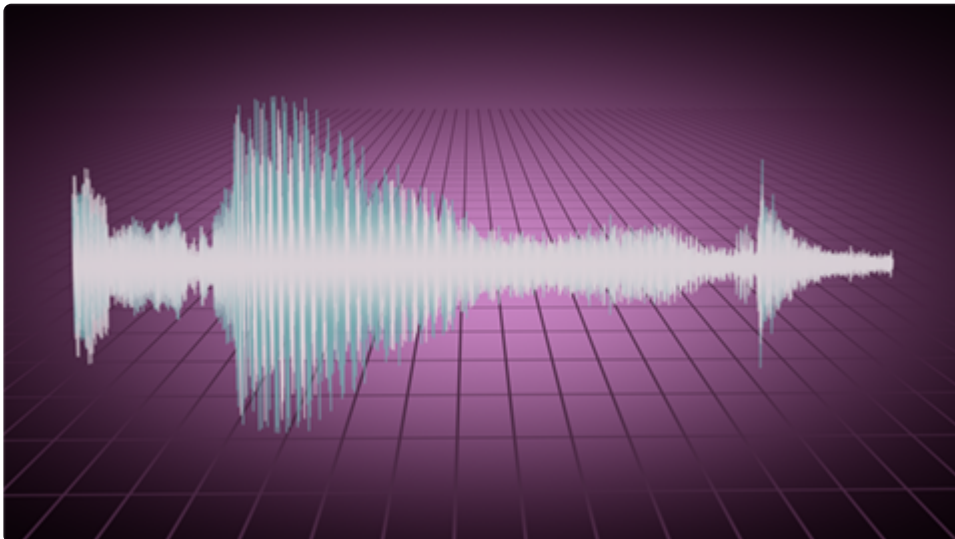


- **Flip:** Flips the effect upside down, so radius values of 1.00 are mapped to the highest point in

the waveform.



- **Mirror:** Combines the original and flipped versions, so radius values of 1.00 are mapped to both the top and bottom of the waveform, with the center line remaining at 0.00, creating a symmetrical effect.



- **Blend:** Controls how the effect is combined with the contents of the layer it is applied to.

2.7.5. Auto Volumetrics

Generates volumetric lighting effects which can be positioned in 3D. The volumetric rays are based on a source layer.



Here is the original frame:



Often the most effective way to apply auto volumetrics is to a simple plane layer. You can then specify a separate source layer in the Light source properties. Applying the effect to a separate plane provides greater flexibility when moving a 3D camera, as the rays can emanate away from the layer boundaries of the source itself.

The light position determines the angle of the rays. You can also link the light position to another layer, such as a light or point layer.

Light Shafts

- **Light Position:** Use these controls to specify the central point from which the volumetric rays will emanate.
 - **Use Layer:** Select another layer on the timeline to use that layer's position to control the auto volumetrics.
 - **XY Position:** Change the center position on the X (horizontal) and Y (vertical) axes.
 - **Z Position:** Adjusts the depth of the origin point, on the axis running toward and away from the virtual camera lens.
- **Light Falloff:** Adjusts the radius of the glow applied to bright areas of the image, which will serve as the source of the rays.
- **Distance Scalar:** Adjusts the length of the rays themselves.

Light Source

- **Use Layer:** Select the layer whose contents will be used to generate the volumetric rays. By default, the contents of the layer to which the effect is applied will be used, unless a different layer is selected here.
- **Use Layer As:** Choose how the selected layer is used. It can be used as the Source, as a Mask, or as a Multiplier for the light rays.
- **Threshold:** Defines the level of brightness below which no volumetric rays will be generated. Only the brightest parts of the image, above the assigned threshold value, will be used to calculate the effect.
- **Exposure:** Adjusts the exposure of the source layer before applying the threshold value. This will not alter the selected layer itself, but only how the contents of that layer are processed to calculate where the volumetrics will be applied.

Render

- **Exposure:** Adjusts the exposure of the rendered volumetric rays themselves.
- **Saturation:** Adjusts the color intensity of the rendered volumetric rays themselves.
- **Colorize:** Allows you to introduce a specific color to the rays, independently of what colors appear in the source layer.
 - **Amount:** How much of the selected color will be blended with the default color of the rays.
 - **Color:** Choose a color. You can use the eyedropper to choose a color from the layer, or click the swatch to open a color picker and choose any color you prefer. You can also manually enter the color values for the red, green, and blue channels.
- **Blend:** Controls how the effect is combined with the contents of the layer it is applied to.

2.7.6. Caustics

Simulates the distortion created when looking through the surface of a volume of water. In this example, the water's surface is entirely generated using Caustics.



This effect can also be used to simulate the natural movement of a liquid surface. The **Bottom Texture** allows you to select another layer whose contents will be used as the floor beneath the water. The **Height Map** controls the shape and movement of the waves on the water's surface. The **Environment Map** handles the reflections on the water's surface.

- **Depth:** Sets the depth of the water simulation. Greater depth values increase the distortion created by the effect.
- **Refractive Index:** Controls how light is refracted through the volume of the water simulation. 1.33 is the refractive index for water. If you wish to simulate other materials, you can change the refractive index used.

Bottom Texture

- **Layer:** Choose a layer that will be used as the image of the floor below the water volume. This can be an image, a video, or a composite shot.

Height Map

The height map is used to create the water's surface. Luminance values are translated into a height map, with black areas being highest, and white areas being lowest.

- **Layer:** Choose any layer on the timeline to use its contents as the height map.
- **Wave Height:** Sets the range between the highest and lowest points.
- **Invert Map:** Inverts the values, so white areas are highest, and black areas are lowest.

Surface Texture

- **Layer:** Chose any layer on the timeline to be used as the surface of the caustics effect.

Illumination

- **Type:** Select what lights will be used to illuminate the caustics effect.
 - **Comp Lights:** The caustics will be illuminated by entire lighting setup that is present on the timeline.
 - **Selected Lights:** Allows you to choose specific lights which will be applied to the caustics, while unselected lights will have no effect.
- **Material:** Control how the caustics will respond to lights.
 - **Ambient:** Sets the intensity to which any Ambient light layers will affect the caustics.
 - **Diffuse:** Sets the intensity to which any Point, Directional, or Spot light layers will affect the caustics.
 - **Specular:** Adjusts the strength of specular highlights when illuminated by point, directional and spot lights. A low specular value will create a more matte surface.
 - **Shininess:** Adjusts the size of the specular highlight. A low shininess creates a large, diffuse highlight while a high value creates a smaller, defined highlight.

Environment Map

Setting up an environment map to control the reflections on the water's surface is a key part of the caustics effect. The selected layer will be mapped onto a spherical surface which surrounds the caustics effect, and reflections will be created based on that. The sphere itself is not visible, it is only used internally to generate the reflections.

- **Layer:** Choose the layer whose contents will be reflected onto the caustics surface.
- **Pre-blur:** Blurs the detail of the selected layer within the created reflections. It is often useful to turn off the pre-blur while setting the position of the reflection, then adjust the amount of pre-blur after the position is correct.
- **Amount:** Sets the overall intensity of the environment map reflections.
- **Angle Dependency:** Controls the balance of the reflection colors and the illumination color in specular areas of the caustic surface.
- **Texture Scale:** Adjusts the scale of the reflected image.
- **Texture Ratio:** Adjusts the height of the reflected image without affecting its width, to control the aspect ratio of the reflections.
- **Transform:** Sets the position of the reflected image within the frame.
 - **X Rotation:** Rotates the spherical map on the X axis.
 - **Y Rotation:** Rotates the spherical map on the Y axis.
 - **Z Rotation:** Rotates the spherical map on the Z axis.

2.7.7. Cosmos

Generates an animated star pattern, with optional connecting lines to generate constellation-style visuals.



- **Seed:** Randomizes the look of the effect. This parameter can be keyframed to change the position of the star elements over time independent from the Travel parameter.
- **Energy:** Adjusts the speed at which the individual elements move as the effect is played. A lower value will result in slower-moving stars and connections.
- **Density:** Adjusts the overall number of stars and connections that appear at one time, with a maximum value of 10. As the number is increased, more elements are added to the effect.
- **Travel:** Adjusts the forward (positive value) or backward (negative value) movement through the effect. A higher percentage value will result in faster movement.
- **Rotation:** Adjusts the overall z-axis rotation of the effect. When keyframing this effect over time in conjunction with the Travel parameter having a non-0% value, it will appear that the camera is rotating while moving forward or backwards.
- **Time Offset:** Adjusts the relative start time of the effect in relation to the timecode in the composite shot timeline.

Stars

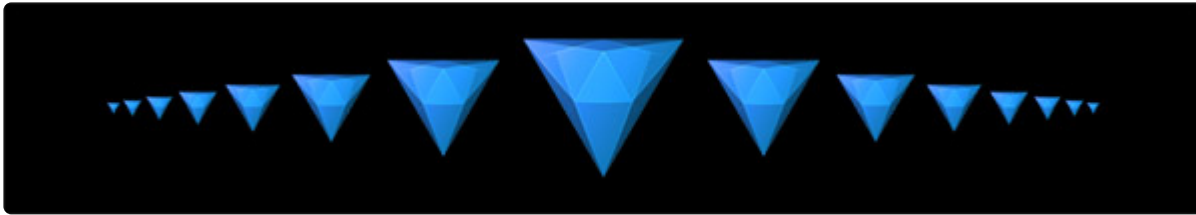
- **Color:** Adjusts the base color of the star element.
- **Color Variation:** Adjusts the variation from the base star color. A lower percentage will result in less variation, while a higher number will result in more variation from the base color.
- **Size:** Adjusts the relative size of the star element.
- **Bloom:** Adjusts the amount of glow on the individual star elements.
- **Twinkle:** Adjusts the rate of the change in the size of the star elements. A lower percentage will result in the stars having a constant size, while a higher percentage will result in more star elements growing and shrinking when the composite shot is played.

Connections

- **Color:** Adjusts the color of the line connections between stars.
- **Amount:** Adjusts the number of line connections between star elements.
- **Thickness:** Adjusts the relative width of the line connections.
- **Softness:** Adjusts the blur on the line connections. A lower percentage will result in more clearly defined lines, while a higher value will result in softer edges.
- **Fade Speed:** Adjusts the speed at which the line connections appear and disappear while the effect is playing.

2.7.8. Clone

Quickly create duplicates of your layer and arrange them in grid patterns.

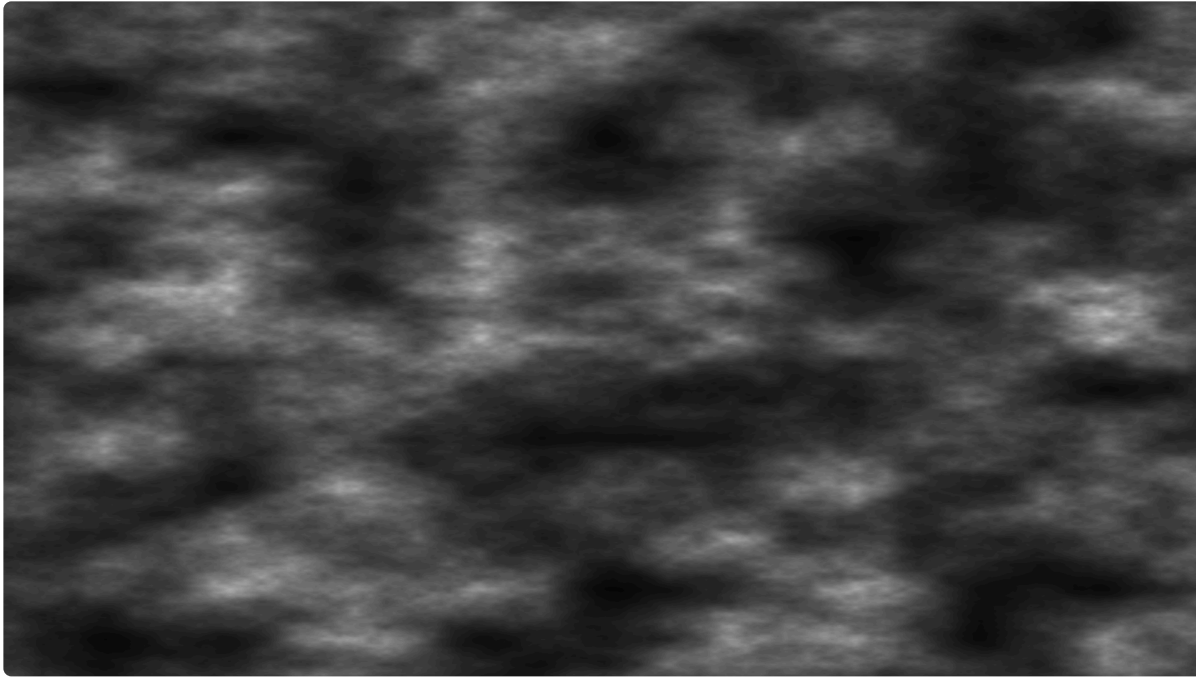


- **Number of Clones:** Sets the number of copies of the layer which will be created.
- **Position Offset:** Define the X and Y distance from the center of the original to the center of the first clone. The same distance will be used to offset any additional clones. The default value is the width of the source layer, so by default there is no space between the clones.
- **Rotation:** Rotates the original and all clones by a selected number of degrees.
- **Rotation Offset:** Does not affect the original, but increases the rotation of each clone over the one preceding it by the selected value. So at a value of 15°, for example, the original will be rotated 0°, the first clone would be rotated 15°, and the second clone would be rotated 30°, the third clone 45°, etc.
- **Scale Offset:** Does not affect the original, but adjusts the scale of each clone to the selected percentage, based on the size of the preceding clone.
- **Scale Position Offset:** Enabling this option reduces the offset of each clone by a percentage corresponding to the Scale Offset.
- **Time Offset:** For layers containing movement, the playback of each clone is offset by the number of frames selected here.
- **Clone Mode:** Select how the clones are positioned in relation to the original.
 - **Normal:** A single copy of clones is created, traveling in the direction defined by the Position Offset values.
 - **Dual:** Clones are created in two opposite directions, in the direction defined by the Position Offset values, and by the inverted offset values.
 - **Mirror:** Uses the same positioning as Dual, but the clones positioned using inverted values are also mirrored from the original.
- **Frame Loop:** Controls playback of the source layer in each clone.
 - **No:** Each instance of the source is played through once, then ends.
 - **Repeat:** Each clone plays repeatedly through the selected loop range, for the duration of the layer the effect is applied to. After reaching the final frame, playback begins again from the first frame.
 - **Oscillate:** Each clone plays repeatedly through the selected loop range, for the duration of the layer the effect is applied to. The frames play back first forward, then in reverse order, then forward, etc.
- **Loop Range:** When The Frame Loop option is set to **Repeat** or **Oscillate**, Frame Loop controls will be displayed.
 - **Start Time:** Select the frame of the source layer at which playback will start.
 - **End Time:** Select the frame of the source material at which play back will stop.

- **Blend Mode:** Controls how the effect is combined with the contents of the layer it is applied to.

2.7.9. Clouds

A simplified fractal generator which creates a moving, randomly generated cloud texture using a fractal pattern. For more complex fractals requiring a finer degree of control, the Fractal Noise effect should be used.



- **Preset:** Choose from a variety of built-in presets, each of which gives you a predefined set of values for the effect controls. These can be used as-is, or as a starting point for further adjustments.

Center

- **Position:** Sets the overall position of the effect, using X (horizontal) and Y (vertical) values.
- **Use Layer:** Select another layer from the timeline using this menu, to use the selected layer's position to control the position of the clouds. When a layer is selected, the Position property above functions as an offset from the parent layer's position.

Shape

- **Frequency:** Sets the frequency of the fractal waveform on which the effect is based, thus adjusting the scale of the clouds. Higher values reduce the size of the individual cloud components.
- **Frequency Relative X:** Adjusts the frequency only on the X axis, thereby altering the aspect ratio of the cloud pattern.
- **Iterations:** Controls the amount of detail in the cloud effect, by adjusting how many iterations of fractal noise are used to generate the pattern.
- **Seed:** Each value randomizes the fractal pattern.

Speed

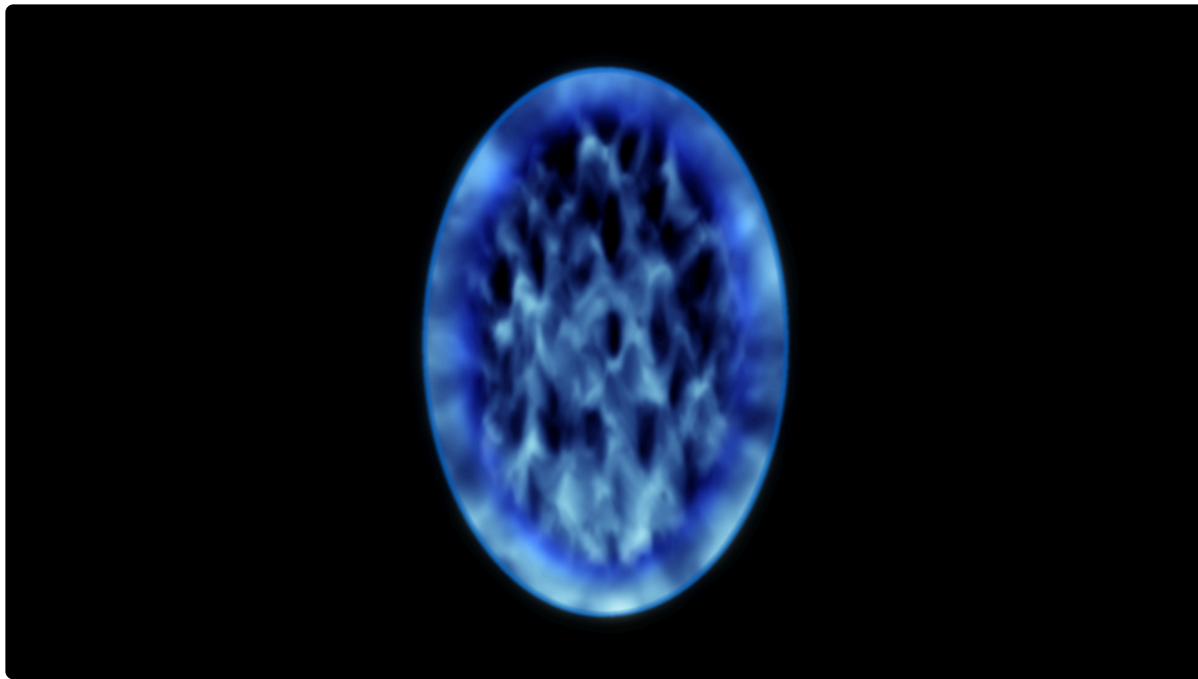
- **X:** Sets the speed, in pixels per second, at which the pattern will move on its horizontal axis. Positive values create movement to the right, negative values create movement to the left.
- **Y:** Sets the speed, in pixels per second, at which the pattern will move on its vertical axis. Positive values create upward movement, negative values create downward movement.

Appearance

- **Blend:** Sets the blend mode used to apply the cloud effect onto the underlying layer.
- **Cloud Brightness:** Adjusts the brightness of the cloud effect.
- **Offset:** Shifts the entire range of brightness up or down. Positive values will clip the whites, and negative values will clip the blacks.
- **Cloud Color:** Choose a color for the cloud pattern. You can use the eyedropper to choose a color from the layer, or click the swatch to open a color picker and choose any color you prefer. You can also manually enter the color values for the red, green, and blue channels.
- **Background Color:** Choose a background color, over which the cloud pattern will be created. You can use the eyedropper to choose a color from the layer, or click the swatch to open a color picker and choose any color you prefer. You can also manually enter the color values for the red, green, and blue channels.

2.7.10. Dimension Rift

Instantly create a portal, a circular rift in space leading to another location!



The Dimension Rift effect has several built-in features for easily creating authentic portals:

- Automatically displace the background video as the portal opens.
- A layer can be selected to be visible through the portal.
- Pre-animated expanding, contracting and connection of portals with controllable animation speed.
- Adjust the 3D wave surface with a fine degree of control.
- Create custom shapes.

Applying the Rift

The Dimension Rift effect can be applied directly onto a video or image layer. This will enable it to displace and warp the background as the portal opens, but you will not be able to rotate and position it in 3D, because it is locked to the host layer.

Individual elements of the effect can be enabled or disabled in the Optional Layers section of the controls.

Controls

- **Preset:** Choose from one of the built-in presets as a starting point for setting up the effect.
- **Wall Image:** As described in Applying the Rift above, you may want the effect to warp a different layer to the host. The Wall Image property is used to define the layer which should be warped. For example, consider a composite shot containing two layers: a live action video clip and a 3D plane.

The Dimension Rift is applied to the 3D plane, which is then positioned in 3D space so that the portal aligns with a wall in the video. The Wall Image property is set to the video layer, so that as the portal opens it warps the video.

Shape

The Dimension Rift defaults to a classic oval shape. This can be customized in the Shape group.

- **From Mask:** Use the shape of a selected layer, such as an image or embedded composite shot containing an alpha channel, to define the shape of the rift. This makes it easy to create your own custom shapes.
- **Position:** Adjusts the position of the rift within the layer it is applied to, without moving the layer itself.
- **Scale:** Adjusts the overall scale of the entire rift effect, including all components which are enabled.
- **Rotation:** Spins the entire rift effect, including all enabled components.
- **Anchor Point:** Shifts the anchor point from which the position and rotation of the effect are calculated, relative to the effect.
- **Portal Roundness:** Setting this value to 1.00 creates a perfect circle. Values below 1.00 create an oval that is taller than it is wide. Values above 1.00 create an oval that is wider than it is tall.

View

These controls relate to what is seen through the portal, when it is open.

- **Image:** Choose another layer on the timeline to have that layer be visible through the dimension rift when the rift is open. When **None** is selected, the view through the portal is simply a hole cut through the host layer.
 - **Note that the selected *Image** will only be visible if the **Connection** property (found below) is set to a value above 0.00.*
- **Position:** Shift the visible area of the selected layer on the X (horizontal) axis or the Y (vertical) axis.
- **Z:** Determines the depth, or distance between the rift and the image seen through it. Increasing the Z depth will create a greater sense of parallax movement when the portal moves in 3D.
- **Scale:** Change the size of the selected layer within the rift.
- **Rotation:** Spin the selected layer, as seen through the rift.

Appearance

These settings are used to adjust the outline of the rift, and the appearance of the interior elements and texture.

- **Noise Scale:** Changes the size of the noise that fills the rift shape.
- **Edge Width:** Sets the width, in pixels, of the feathered edge that surrounds the rift. The color of the Edge is determined by the Primary Color property found further down the controls.
- **Outline Width:** Sets the width, in pixels, of the solid line which marks the outside boundary of the rift. The color of the Outline is determined by the Primary Color property found further down the controls.
- **Depth:** Changes the apparent Z depth of the rift.

- **Brightness Direction:** Rotates the highlight applied to the effect. As a general rule, the highlight should be applied to the edge nearest the camera, but you can position it however you want.

Animation

These properties control the animation of the texture which fills the rift while it is closed, and the edge which surrounds the open rift.

- **Noise Motion Direction:** Select the direction in which the noise pattern will travel.
- **Noise Motion Speed:** Set the speed at which the noise's position will change, in the direction chosen above.
- **Noise Change Speed:** Set the speed at which the pattern of noise will be modified.
- **Sparks:** Specify the number of sparks which are emitted as the rift is opened or closed using the connection property, or when the Expansion property is animated.
 - **NOTE:** The color of the sparks displayed during **Expansion** is determined by the Primary Color property found further down the controls.
 - **NOTE:** The color of the sparks displayed during **Connection** is determined by the Secondary Color property found further down the controls.

Optional Layers

Specific elements of the effect can be enabled or disabled, providing finer control over exactly what is included in the effect.

- **Wall:** Enable or disable the interaction with the selected Wall Image layer. Disabling this option removes the Wall Image property from the controls.
- **Floating Edge:** Enable or disable the solid line which marks the outside boundary of the rift.
- **Sparks:** Enable or disable the sparks that appear when the rift is expanded or contracted.
- **Secondary Portal:** When enabled, the inner edge of the opened rift will display the secondary color. Disable this option to remove the secondary color from within the rift.
- **Secondary Sparks:** Enable or disable the sparks that appear when the rift is connected or disconnected.

The final controls adjust the colors of the dimension rift, and allow you to keyframe its activity.

- **Primary Color:** The primary color is used on the side of the dimension rift closest to camera.
- **Secondary Color:** The Secondary color can be glimpsed through the portal when it is open, and represents the portal on the 'other side', or the destination of the rift. This can be set to be a different color.
- **Expansion:** Keyframing the Expansion property animates the portal appearing or disappearing on a wall or surface. This includes displacement warping as it expands, as long as you have selected a Wall Image. It also includes Sparks in the primary color.
- **Connection:** Keyframing the Connection property links, or connects, the portal to the destination, thereby opening the portal. With Connection set to 0.00, the portal will be closed, with a rippling, water-like surface. Increasing the Connection will dissolve the rippling surface to reveal the **View**, as

set in the View properties.

2.7.11. Distance Field

Creates a grayscale gradient, coloring each pixel based on its distance from the edge of the layer. Distance fields are primarily useful as an intermediary step to creating various other effects, rather than being used on their own as an end result.



- **Mode:** Select the mode that will be used to generate the gradient
 - **Inner Distance:** The edge of the layer is black, and the gradient extends into the layer, to the width of the radius.
 - **Outer Distance:** The edge of the layer is black, and the gradient extends outward from the layer, to the width of the radius.
 - **Edge Distance:** The edge of the layer is black, and the gradient extends in both directions, to the width of the radius.
 - **Signed Distance:** The edge of the layer is mid-gray, and the gradient extends to white inside the layer, and to black outside the layer.
- **Radius:** Defines the width of the gradient in pixels. Everything farther from the edge than the selected radius will be pure white (or pure black, if the effect is inverted)
- **Invert:** Swaps the black and white ends of the gradient, to invert the grayscale map.

2.7.12. Drop Shadow

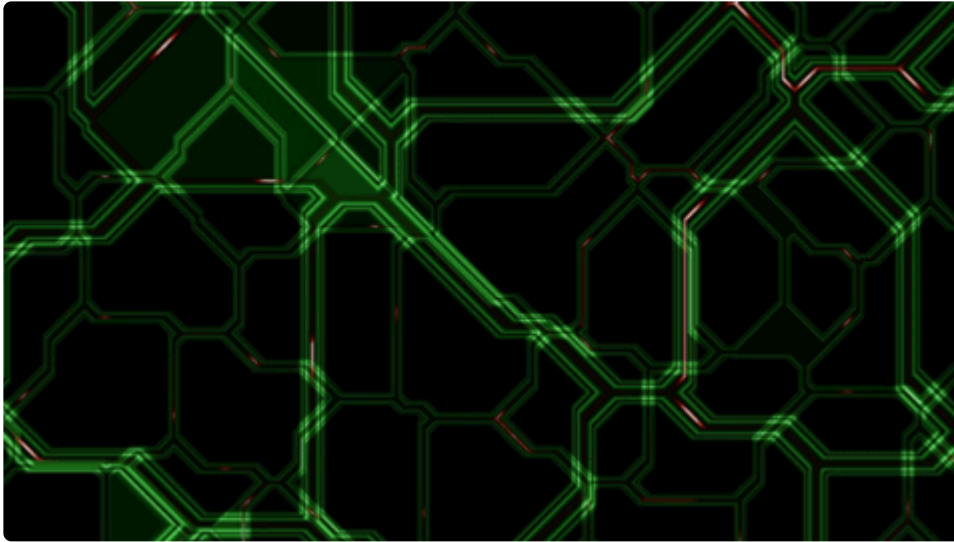
Adds a drop shadow to the layer. You can change the scale, distance and appearance of the shadow, or choose to render the shadow without the layer.



- **Preset:** Choose from one of the built-in shadow configurations.
- **Angle:** Sets the angle at which the shadow will be offset from the layer's center
- **Distance:** Choose the distance, in pixels, of the shadow's offset from the layer position.
- **Shadow Color:** Choose a color for the shadow. You can use the eyedropper to choose a color from the viewer, or click the swatch to open a color picker and choose any color you prefer. You can also manually enter the color values for the red, green, and blue channels.
- **Opacity:** Adjust how transparent the shadow is. 0.00 is completely transparent, and 1.00 is completely opaque.
- **Scale:** Adjusts the size of the shadow, as a percentage of the source layer's size. Values below 1.00 will be smaller than the source layer, values above 1.00 will be larger than the source layer.
- **Scale Pivot:** Offsets the origin point from which the shadow is scaled.
- **Penumbra:** Adjusts the width, in pixels, of the feathered edge of the shadow.
- **Shadow Only:** Enabling this option hides the layer, and renders only the shadow.

2.7.13. Electro

Generates a network of lines and traveling electrons to create graphics reminiscent of electronic circuitry or a circuit board.



- **Seed:** Each seed number generates a unique electric circuit pattern.
- **Layer Count:** Adjust the complexity of the circuit pattern.
- **Blend:** Adjust the blend mode of the Electro effect, to control how it is combined with the contents of the layer to which it is applied.

Electronics

- **Color:** Adjusts the color of the Electrons.
- **Speed:** Alters the speed of the Electron movement.
- **Spread:** Alters the overall length of the Electrons.
- **Hide Nearby Electrons:** Adjust the visibility of the Electrons based on their perceived distance from the camera.

Paths

- **Color:** Adjust the color of the circuitry paths.
- **Width:** Adjust the overall relative width of the circuitry paths.
- **Hide Nearby Paths:** Lowers the overall transparency of paths that appear closer, unifying the look of the paths.

View

- **Zoom:** Scales the effect as if zooming closer or further away. A lower percentage will appear to add more detail to the circuitry pattern.
- **Panning:** Adjusts the vertical and horizontal offset of the effect.

- **Rotation:** Rotates the effect around the Z-axis, allowing for a more varied look.

2.7.14. End Credits Crawl

Creates scrolling end credits with automatic formatting and animation, designed to mimic classic feature film credits.



The effect is split into multiple design elements and automatically reflows text and adjusts the layout depending on the copy you provide. Formatting and layout for element titles, role descriptions and names can be adjusted independently, giving you a lot of flexibility within the core framework.

If you omit either titles or roles, the layout will be automatically updated to still make sense. For example, removing roles will reflow the names into a multi-column layout by default, which is useful for crediting a large stunt or VFX team who all share the same role.

Text Format

This section contains the text controls for adjusting the appearance of each of the components of the effect.

- **Color:** Choose a color for the end credits. The entire end credits effect will use a single color. You can use the eyedropper to choose a color from the viewer, or click the swatch to open a color picker and choose any color you prefer. You can also manually enter the color values for the red, green, and blue channels.
- **Title:** Edits the appearance of the Title component of each element.
 - **Font:** Choose from any of the fonts installed on your system.
 - **Style:** Select the style of the selected font to be used. **Regular**, **Bold**, **Italic** and **Bold Italic** are available.
 - **Font Size:** Set the size of the text.

- **Force Uppercase:** Enabling this option overrides the case sensitivity of the text, and uses uppercase letters exclusively.
- **Roles:** Edits the appearance of the Roles component of each element.
 - **Font:** Choose from any of the fonts installed on your system.
 - **Style:** Select the style of the selected font to be used. **Regular**, **Bold**, **Italic** and **Bold Italic** are available.
 - **Font Size:** Set the size of the text.
 - **Force Uppercase:** Enabling this option overrides the case sensitivity of the text, and uses uppercase letters exclusively.
- **Names:** Edits the appearance of the Names component of each element.
 - **Font:** Choose from any of the fonts installed on your system.
 - **Style:** Select the style of the selected font to be used. **Regular**, **Bold**, **Italic** and **Bold Italic** are available.
 - **Font Size:** Set the size of the text.
 - **Force Uppercase:** Enabling this option overrides the case sensitivity of the text, and uses uppercase letters exclusively.

Layout

Adjust the layout and positioning of the End Credits effect.

- **Width:** Sets the maximum overall width of the end credits.
- **Horizontal Positioning:** Adjusts the position of the end credits, from left to right.
- **Vertical Spacing:** Adjusts the gaps between the components of the effect.
 - **Element:** Changes the gap between one element and the next.
 - **Sub-element:** Changes the spacing between the individual components within an element.
 - **Line:** Changes the spacing between the lines in any component of an element that contains multiple lines.
- **Horizontal Spacing:** Adjusts the horizontal spacing between components of the effect.
 - **Column Gap:** Adjusts the gap between the Roles column and the Names column.
 - **Columned Names Width:** For components containing multiple names divided into columns, this adjusts the gap between the columns.
- **Speed:** Determines the speed at which the credits will crawl.
- **Number of Elements:** Set the number of separate elements contained in the complete end credits crawl.

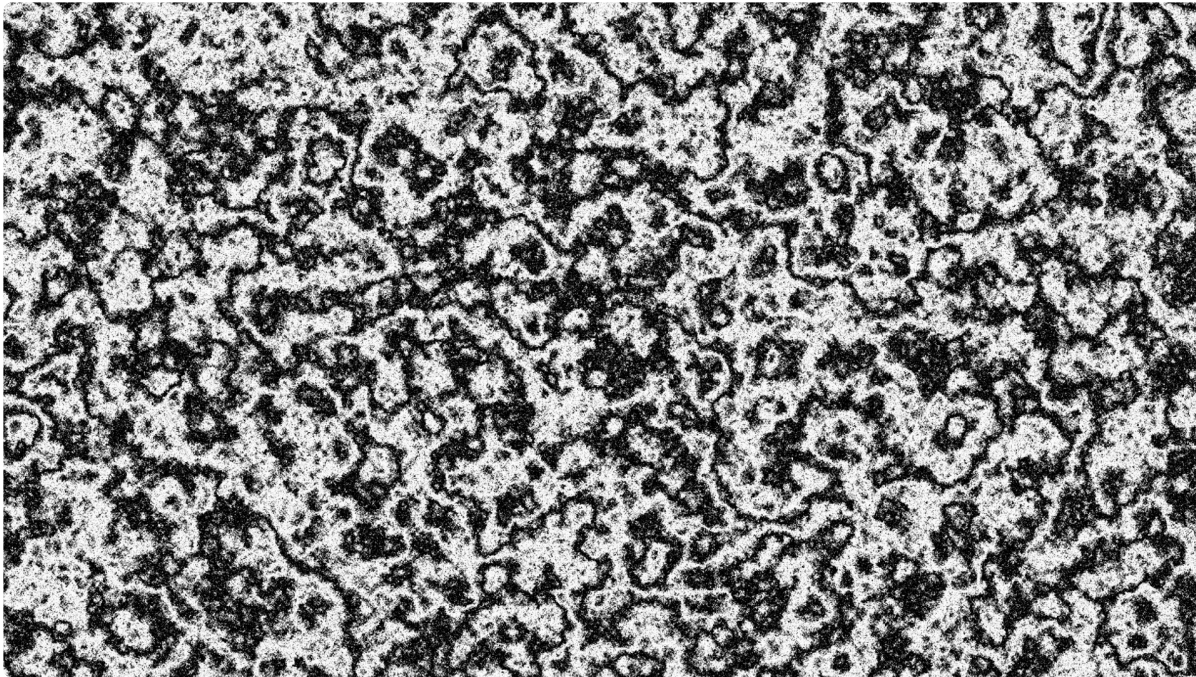
Numbered Element Controls

A separate set of numbered Element controls (Element 1, Element 2, etc.) will be displayed for each element.

- **Title:** Enter the title of the element, e.g. Cast, Director, Visual Effects Supervisor, etc.
- **Roles:** For cast elements, enter the character names here.
- **Names:** Enter the names of the cast or crew members here.

2.7.15. Fractal Noise

Procedurally generates a variety of patterns based on multiple iterations of fractal geometry.



Each fractal method includes a range of properties for customizing the appearance of the effect.

- **Preset:** Choose from a variety of built-in presets.
- **Seed:** Randomizes the pattern within the style created by the other settings. The seed value can also be keyframed to create movement within the pattern.
- **Type:** Each type uses a different fractal, to give a different appearance to the pattern.
 - **Blob:** Creates a pattern of solid blobs with defined edges.
 - **Clouds:** Creates a pattern of gradual transitions with dithered edges, reminiscent of clouds.
 - **Colored Clouds:** Similar to clouds, but using the entire spectrum of colors.
 - **Emboss:** Uses a pattern similar to clouds, but then applies a height map, creating a stone-like texture.
 - **Marble:** A pattern of randomized fluid lines, giving the appearance of marble.
 - **Swirl:** A variation of clouds where each tone has a linear aspect, so the colors swirl softly together.
 - **Whisp:** Stringy, high contrast pattern.
 - **Wood:** A strong linear pattern reminiscent of wood grain.
 - **Energy:** A pattern of thin, energetic strings.
 - **Fluid:** Replicates a pattern similar to the caustics created by looking through a volume of water.
 - **Smoke:** Soft, billowing shapes like the texture of smoke.
- **Interpolation:** Choose the method used to build the texture from the fractal geometry.
 - **Block:** Creates a square, pixelated appearance.
 - **Linear:** Applies more gradual transitions from one block to the next.

- **Cubic:** More dramatic gradients completely obscure the block pattern to create organic shapes.

Transform

- **Position:** Moves the origin point of the fractal pattern, thereby shifting the entire pattern by the value selected.
- **Use Layer:** Allows you to select another timeline layer, to parent the fractal noise to its position data. When a layer is selected, the Position values above function as an offset from the parent layer.
- **Rotation:** Rotates the pattern around the origin point.
- **Scale:** Adjusts the size of the fractal pattern.
- **Axis Scale:** Allows you to scale the pattern on a single axis.
 - **X:** Scales the width of the pattern without affecting the height.
 - **Y:** Scales the height of the pattern, without affecting the width.

Sub Settings

The sub settings affect the additional iterations of the fractal which are used to break up the primary fractal and create the finer details.

- **Sub Levels:** Sets the number of sub levels which will be applied.
- **Influence:** Adjusts the balance of the original fractal and the sub levels. Values below 50% favor the original, and values above 50% favor the sub levels.
- **Scale:** Adjusts the size of the sub levels, without altering the original.
- **Rotation:** Rotates the sub levels, without rotating the original.
- **Offset:** Adjusts the position of the sub levels without altering the original.
- **Center Subscale:** Enabling this option precisely aligns the noise used for each sub scale with the primary fractal. Disabling it randomly positions each subscale noise, for more random results.

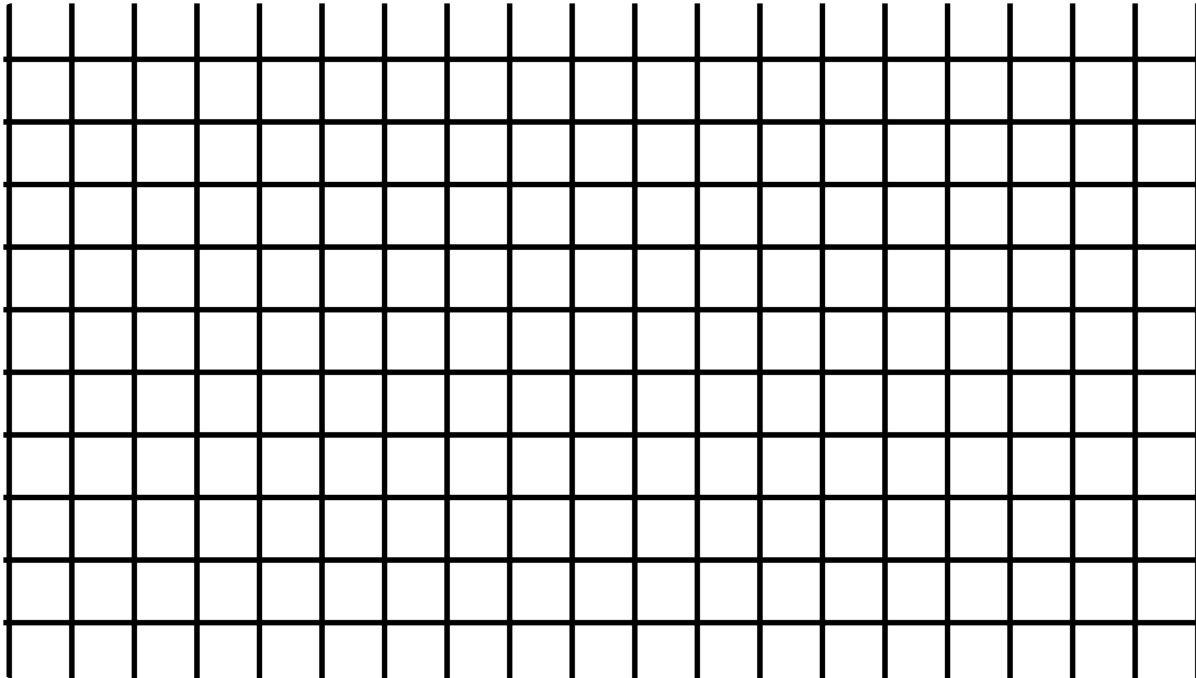
Appearance

- **Color 1:** Controls for the first color used to generate the fractal pattern.
 - **Color:** You can use the eyedropper to choose a color from the viewer, or click the swatch to open a color picker and choose any color you prefer. You can also manually enter the color values for the red, green, and blue channels.
 - **Opacity:** Adjusts the transparency of areas of the fractal pattern filled with the first color.
- **Color 2:** Controls for the second color used to generate the fractal pattern.
 - **Color:** You can use the eyedropper to choose a color from the viewer, or click the swatch to open a color picker and choose any color you prefer. You can also manually enter the color values for the red, green, and blue channels.
 - **Opacity:** Adjusts the transparency of areas of the fractal pattern filled with the second color.
- **Exposure:** Adjusts the exposure of the fractal effect. The intensity of the results correspond directly to the to the brightness of the original colors, so bright areas are affected more strongly than dark areas. Positive values brighten the effect, and negative values darken it.
- **Offset:** Shifts the entire range of tonal values up or down. Values shifted beyond pure black or pure white will be clipped.

- **Blend:** Controls how the effect is combined with the contents of the layer it is applied to.

2.7.16. Grid

Creates a grid pattern. The size of each square of the grid is determined by the position of two points, which mark opposite corners of the central square. You can adjust the spacing and size of the grid lines.



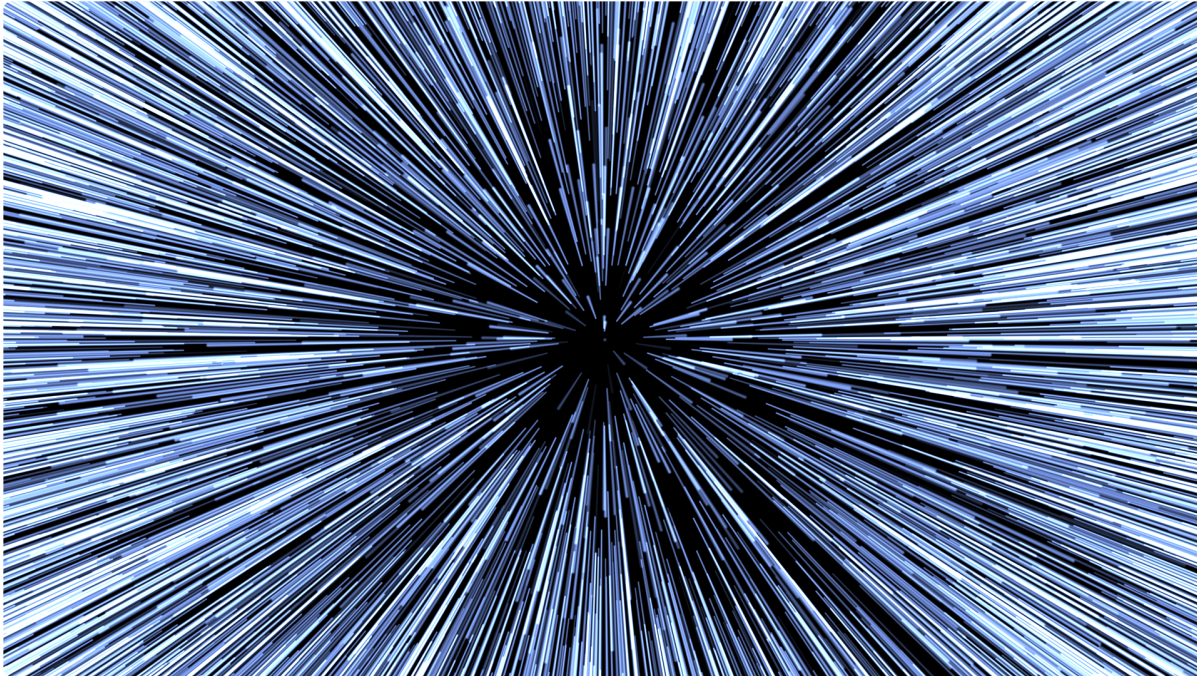
- **Preset:** Choose from one of the built-in grid presets.
- **Point 1:** The top left corner of the square.
 - **Position:** Sets the location on the canvas of the top left corner of the central grid square
 - **Use Layer:** Select another layer from the timeline using this menu, to use the selected layer's position to control the position of point 1. When a layer is selected, the Position property above functions as an offset from the parent layer's position.
- **Point 2:** The top left corner of the square.
 - **Position:** Sets the location on the canvas of the top left corner of the central grid square
 - **Use Layer:** Select another layer from the timeline using this menu, to use the selected layer's position to control the position of point 2. When a layer is selected, the Position property above functions as an offset from the parent layer's position.
- **Border Radius:** Sets the thickness, in pixels, of the grid lines.
- **Feather:** Adjust the softness of the edges of the grid lines.
 - **Feather X:** Applies a blur on the X axis (left to right), which adjusts the edge softness of the vertical lines.
 - **Feather Y:** Applies a blur on the y axis (top to bottom), which adjusts the edge softness of the horizontal lines.
- **Color:** Choose a color for the grid lines. You can use the eyedropper to choose a color from the viewer, or click the swatch to open a color picker and choose any color you prefer. You can also manually enter the color values for the red, green, and blue channels.
- **Invert:** Enabling this option inverts the effect, creating a grid of visible squares with transparent lines

between them.

- **Blend:** Controls how the effect is combined with the contents of the layer it is applied to.

2.7.17. Hyperdrive

Jumping to lightspeed is as easy as dusting crops with this effect, which generates a spray of streaking stars, complete with built-in animation and customization.



- **Progress:** Controls the overall animation of the effect. At 0% the stars have not yet appeared, and at 100% they have completed their animation past camera. Keyframing the progress creates the animation of the effect.
- **Temperature:** Sets the base color temperature (in Kelvin) of the stars and star lines. Higher temperatures shift the color toward blue. Lower temperatures shift the color toward Orange and red. Daylight white is around 6500 K.
- **Temperature Variation:** Add some variation to the star colors by increasing this value. Colors will vary from the base temperature in both directions, by the amount you select.
- **Number of Stars:** Determines the number of stars within the frame.
- **Seed:** Each seed value provides a different layout of the star placement, effectively randomizing their positions.
- **Star Blend:** Choose the Blend mode which is used to combine star trails where they overlap. Add is often the best option, which creates a pleasing brightness in overlapping areas.
- **Blend With Source:** Choose the blend mode used to combine the stars and star trails with the contents of the layer to which the effect is applied. None makes the underlying layer transparent, so only the Hyperdrive effect is visible, and makes it easy to composite the effect onto underlying timeline layers. On Top lays the stars and star trails over the contents of the layer to which the effect is applied.

2.7.18. Letterbox

The fastest and easiest way to add letterboxing to your movie. Presets enable you to quickly pick from standard film aspect ratios.



- **Preset:** Choose from a selection of common aspect ratios.
- **Color:** Choose a color for the letterbox areas. You can use the eyedropper to choose a color from the viewer, or click the swatch to open a color picker and choose any color you prefer. You can also manually enter the color values for the red, green, and blue channels.
- **Aspect Ratio:** Choose an aspect ratio to use. The Custom options allow you to specify any ratio you wish.
 - **Custom (ratio)** is used to define the ratio of the width as a percentage of the height (example, 2.35:1).
 - **Custom (w:h)** allows you to specify the ratio as multiple of a smaller value (example, 16:9).

2.7.19. LightSword (2-Point Auto)

Ignite Pro provides the most efficient and high quality tools for creating lightsword effects, reducing the rotoscoping requirements and automating key visual elements such as the motion blur trails.



Lightsword (2-Point Auto) provides a rapid method requiring the placing of two points in the frame, one at the hilt and one at the tip of the prop blade. Once these points are roto-scoped to the movement of the lightsword blade, the plugin will automatically calculate the appropriate motion blur based on the speed at which the blade is moving, and the path interpolation settings you choose.

Hilt

- **Position Menu:** The hilt position can be linked to another layer via the Position menu. Use the menu to select any other layer on your timeline, to apply the selected layer's position to the Hilt point. When a layer is selected, the Position values below serve as an offset from the selected layer's position.
- **Position:** The hilt position can be manually specified, using X (horizontal) and Y (vertical) values. When a layer is selected, these Position values serve as an offset from the selected layer's position.
- **Width:** Sets the width of the lightsaber core at the hilt. The width of the hilt and tip can be set separately, which is useful for creating perspective on the blade or creating tapered shapes.

Tip

- **Position Menu:** The tip position can be linked to another layer via the Position menu. Use the menu to select any other layer on your timeline, to apply the selected layer's position to the Hilt point. When a layer is selected, the Position values below serve as an offset from the selected layer's position.
- **Position:** The tip position can be manually specified, using X (horizontal) and Y (vertical) values. When a layer is selected, these Position values serve as an offset from the selected layer's position.
- **Width:** Sets the width of the lightsaber core at the tip. The width of the hilt and tip can be set separately, which is useful for creating perspective on the blade or creating tapered shapes.

Extension

- **Extension:** Sets the length of the blade, as a percentage of the distance from the hilt to the tip. The lightsword extension can be keyframed to create the 'ignition' animation, whereby the lightsword blade extends out of the hilt, or contracts back in.

Core

The core is the central part of the effect which directly covers the prop blade.

- **Width:** The Width of the core can be adjusted, as a percentage of the width values set in the Tip and Hilt controls above. This control allows you to adjust the overall width with a single control, while retaining any taper created by the separate width values used in the hilt and tip controls.
- **Color:** Choose a color for the core. The core Color should generally be set slightly off white, in the direction of the color that will be used for the glow. You can use the eyedropper to choose a color from the layer, or click the swatch to open a color picker and choose any color you prefer. You can also manually enter the color values for the red, green, and blue channels.
- **Feather:** Adjusts the softness of the core's edges.
- **Stability:** Lowering the Stability causes the core shape to fluctuate in size, making the blade appear unstable.
- **Mask:** Control whether masks applied to the layer affect the glow.
 - **Disable:** Allows the glow to naturally wrap around the mask edges, for a softer result. This option is best when the object being masked is very near the lightsword blade
 - **Enable:** Cuts the glow off exactly at the edge of the mask. Masks should generally be enabled when there is a significant distance between the object being masked and the lightsword blade.
 - **Invert:** Reveals the glow outside the mask, while removing it inside.

Inner Glow

Two glows are built-in to the effect. Varying the width of the inner and outer glows allows you to layer the glow and create a more natural falloff around the edges of the effect. The inner glow is controlled here, and the outer glow controls are found below.

- **Width:** Adjusts the overall width of the inner glow, in pixels.
- **Color:** Choose a color for the inner glow. The inner glow color should generally be set to a bright, highly saturated color. You can use the eyedropper to choose a color from the layer, or click the swatch to open a color picker and choose any color you prefer. You can also manually enter the color values for the red, green, and blue channels.
- **Alpha:** Adjusts the opacity of the inner glow.
- **Stability:** Lowering the stability causes the inner glow to fluctuate in size, making the blade appear unstable.
- **Flicker:** Sets the intensity of the flicker applied to the glow's brightness. This does not alter the shape of the glow.

Outer Glow

Two glows are built-in to the effect. Varying the width of the inner and outer glows allows you to layer the glow and create a more natural falloff around the edges of the effect. The outer glow is controlled here, and the inner glow controls are found above.

- **Width:** Adjusts the overall width of the inner glow, in pixels.
- **Color:** Choose a color for the inner glow. The outer glow color can be set to a similar color to the inner glow color, for a traditional look, or to an entirely different color to create a gradient in the glow. You can use the eyedropper to choose a color from the layer, or click the swatch to open a color picker and choose any color you prefer. You can also manually enter the color values for the red, green, and blue channels.
- **Alpha:** Adjusts the opacity of the inner glow.

Path interpolation

During rapid movement motion blur should cause the hilt and tip to fan out, creating a motion trail. Path interpolation is used to create a natural curve along the hilt and tip ends.

- **Scale:** Reducing the scale to zero will remove all path interpolation, resulting in straight lines drawn at the hilt and tip ends of the blade. Increasing the scale will create path interpolation and curve the ends.
- **Hilt:** When the blade is swinging toward or away from the camera, you can adjust the Hilt angle to correspond to the movement of the prop's hilt, and get accurate motion simulation.
- **Tip:** When the blade is swinging toward or away from the camera, you can adjust the Tip angle to correspond to the movement of the prop's tip, and get accurate motion simulation.
- **Motion Persistence:** Ignite Pro automatically attempts to create a natural trail shape based on the movement of the hilt and tip points, based on the expected behavior of a blade in motion. The duration of the trail is determined by the motion persistence. Increasing the value will cause the trail to remain visible for more frames, thus creating a larger trail. Reducing the value will create a smaller trail.
 - Note that motion persistence is restricted by the Auto Scale Persistence properties, if Auto Scale is activated (see below).
- **Persistence Shift:** Shifts the position of the motion blur in relation to the exact hilt and tip locations. This adjusts the trail to be either in front (1.0), behind (0.0) or in the middle (0.5) of the control point positions. At the default of 0.0 this means that on frames containing fast moving blades you should position the control points on the leading edges of the blade.

Auto Scale Persistence

Auto Scale provides additional control over the generation of the persistence trail, determining when the trail is generated. These settings can be used to match the trail to the natural motion blur found in your footage, which may vary depending on your camera settings.

- **Auto Scale:** Choose how the scale persistence is calculated.

- **Enable:** Uses the thresholds below to calculate the motion persistence.
- **Disable:** Uses only the Motion Persistence property. Therefore the trail will always be generated even during small movements. A high Motion Persistence value combined with Auto Scale turned off will create a long, unnatural trail. Increasing the motion persistence over 180 can create extreme streaking. This isn't suitable for lightsabers but can be an interesting effect in its own right.
- **Speed Threshold:** Used to restrict the activation of motion persistence. Below the specified threshold, the lightsword shape will be drawn without any trail. This ensures that the blade does not look indistinct when it is moving slowly. As soon as the speed threshold is exceeded, the trail will be generated according to the motion persistence setting.
- **Swing Threshold:** Used to restrict the activation of motion persistence. Below the specified threshold, the lightsword shape will be drawn without any trail. This ensures that the blade does not look indistinct when it is moving slowly. As soon as the swing threshold is exceeded, the trail will be generated according to the motion persistence setting.
- **Minimum Persistence:** Determines how much motion trail is generated on frames where the speed and swing thresholds are not met. Setting this to 0.0 ensures the blade shape is defined solely by the core, hilt and tip properties. Raising the value will generate a blur trail even during minor movements.

Distortion

Distortion not only alters the edges of the core, to make them more irregular, but distorts the background layer where it is visible through the glow. If Distortion is reduced to 0 the edge will be regular and smooth.

- **Distortion:** Determine how irregular the edge of the core is. Lower values give a smoother, more refined effect. Higher values will make the edge irregular, and increasingly distort the background behind the glow of the effect. This can help to make the effect feel more convincing, as part of the scene.
- **Blend:** Choose the blend mode that is used to composite the effect onto the underlying layers.

2.7.20. Lightsword (4-Point Manual)

Ignite Pro provides the most efficient and high quality tools for creating lightsword effects, reducing the rotoscoping requirements and automating key visual elements such as the motion blur trails.



Lightsword (4-Point Manual) provides precise control over the lightsword shape by using four control points, two at the hilt and two at the tip of the prop blade. This allows you to precisely match the shape to the motion blur of the prop blade created by the camera. Both ends of the effect will be curved based on their motion and the Path Interpolation settings you have selected, to create a natural shape for the moving blade.

Hilt

- **Position 1 Menu:** The left hilt corner. Hilt position 1 can be linked to another layer via the Position menu. Use the menu to select any other layer on your timeline, to apply the selected layer's position to the Hilt point. When a layer is selected, the Position values below serve as an offset from the selected layer's position.
- **Position 1:** The left hilt corner. Hilt position 1 can be manually specified, using X (horizontal) and Y (vertical) values. When a layer is selected, these Position values serve as an offset from the selected layer's position.
- **Position 2 Menu:** The right hilt corner. Hilt position 2 can be linked to another layer via the Position menu. Use the menu to select any other layer on your timeline, to apply the selected layer's position to the Hilt point. When a layer is selected, the Position values below serve as an offset from the selected layer's position.
- **Position 2:** The right hilt corner. Hilt position 2 can be manually specified, using X (horizontal) and Y (vertical) values. When a layer is selected, these Position values serve as an offset from the selected layer's position.
- **Width:** Sets the width of the lightsaber core at the hilt. The width of the hilt and tip can be set

separately, which is useful for creating perspective on the blade or creating tapered shapes.

Tip

- **Position 1 Menu:** The left tip corner. Tip position 1 can be linked to another layer via the Position menu. Use the menu to select any other layer on your timeline, to apply the selected layer's position to the Hilt point. When a layer is selected, the Position values below serve as an offset from the selected layer's position.
- **Position 1:** The left tip corner. Tip position 1 can be manually specified, using X (horizontal) and Y (vertical) values. When a layer is selected, these Position values serve as an offset from the selected layer's position.
- **Position 2 Menu:** The right tip corner. Tip position 2 can be linked to another layer via the Position menu. Use the menu to select any other layer on your timeline, to apply the selected layer's position to the Hilt point. When a layer is selected, the Position values below serve as an offset from the selected layer's position.
- **Position 2:** The right tip corner. Tip position 2 can be manually specified, using X (horizontal) and Y (vertical) values. When a layer is selected, these Position values serve as an offset from the selected layer's position.
- **Width:** Sets the width of the lightsaber core at the tip. The width of the hilt and tip can be set separately, which is useful for creating perspective on the blade or creating tapered shapes.

Extension

- **Extension:** Sets the length of the blade, as a percentage of the distance from the hilt to the tip. The lightsword extension can be keyframed to create the 'ignition' animation, whereby the lightsword blade extends out of the hilt, or contracts back in.

Core

The core is the central part of the effect which directly covers the prop blade. Normally it is the brightest component of the effect.

- **Width:** The Width of the core can be adjusted, as a percentage of the width values set in the Tip and Hilt controls above. This control allows you to adjust the overall width with a single control, while retaining any taper created by the separate width values used in the hilt and tip controls.
- **Color:** Choose a color for the core. The core Color should generally be set slightly off white, in the direction of the color that will be used for the glow. You can use the eyedropper to choose a color from the layer, or click the swatch to open a color picker and choose any color you prefer. You can also manually enter the color values for the red, green, and blue channels.
- **Feather:** Adjusts the softness of the core's edges.
- **Stability:** Lowering the Stability causes the core shape to fluctuate in size, making the blade appear unstable.
- **Mask:** Control whether masks applied to the layer affect the glow.
 - **Disable:** Allows the glow to naturally wrap around the mask edges, for a softer result. This option is best when the object being masked is very near the lightsword blade

- **Enable:** Cuts the glow off exactly at the edge of the mask. Masks should generally be enabled when there is a significant distance between the object being masked and the lightsword blade.
- **Invert:** Reveals the glow outside the mask, while removing it inside.

Inner Glow

Two glows are built-in to the effect. Varying the width of the inner and outer glows allows you to layer the glow and create a more natural falloff around the edges of the effect. The inner glow is controlled here, and the outer glow controls are found below.

- **Width:** Adjusts the overall width of the inner glow, in pixels.
- **Color:** Choose a color for the inner glow. The inner glow color should generally be set to a bright, highly saturated color. You can use the eyedropper to choose a color from the layer, or click the swatch to open a color picker and choose any color you prefer. You can also manually enter the color values for the red, green, and blue channels.
- **Alpha:** Adjusts the opacity of the inner glow.
- **Stability:** Lowering the stability causes the inner glow to fluctuate in size, making the blade appear unstable.
- **Flicker:** Sets the intensity of the flicker applied to the glow's brightness. This does not alter the shape of the glow.

Outer Glow

Two glows are built-in to the effect. Varying the width of the inner and outer glows allows you to layer the glow and create a more natural falloff around the edges of the effect. The outer glow is controlled here, and the inner glow controls are found above.

- **Width:** Adjusts the overall width of the inner glow, in pixels.
- **Color:** Choose a color for the inner glow. The outer glow color can be set to a similar color to the inner glow color, for a traditional look, or to an entirely different color to create a gradient in the glow. You can use the eyedropper to choose a color from the layer, or click the swatch to open a color picker and choose any color you prefer. You can also manually enter the color values for the red, green, and blue channels.
- **Alpha:** Adjusts the opacity of the inner glow.

Path interpolation

During rapid movement motion blur should cause the hilt and tip to fan out, creating a motion trail. Path interpolation is used to create a natural curve along the hilt and tip ends.

- **Scale:** Reducing the scale to zero will remove all path interpolation, resulting in straight lines drawn at the hilt and tip ends of the blade. Increasing the scale will create path interpolation and curve the ends.
- **Hilt 1:** When the blade is swinging toward or away from the camera, you can adjust the Hilt angle to correspond to the movement of the prop's hilt, and get accurate motion simulation.

- **Hilt 2:** When the blade is swinging toward or away from the camera, you can adjust the Hilt angle to correspond to the movement of the prop's hilt, and get accurate motion simulation.
- **Tip 1:** When the blade is swinging toward or away from the camera, you can adjust the Tip angle to correspond to the movement of the prop's tip, and get accurate motion simulation.
- **Tip 2:** When the blade is swinging toward or away from the camera, you can adjust the Tip angle to correspond to the movement of the prop's tip, and get accurate motion simulation.

Distortion

Distortion not only alters the edges of the core, to make them more irregular, but distorts the background layer where it is visible through the glow. If Distortion is reduced to 0 the edge will be regular and smooth.

- **Distortion:** Determine how irregular the edge of the core is. Lower values give a smoother, more refined effect. Higher values will make the edge irregular, and increasingly distort the background behind the glow of the effect. This can help to make the effect feel more convincing, as part of the scene.
- **Blend:** Choose the blend mode that is used to composite the effect onto the underlying layers.

2.7.21. Lightsword (Glow Only)

Ignite Pro provides the most efficient and high quality tools for creating lightsword effects, reducing the rotoscoping requirements and automating key visual elements such as the motion blur trails.



Lightsword (Glow Only) allows you to create an external glow to any layer's shape. You can use masks to define or animate a layer's shape, then add a glow around the outside of that shape. This technique is commonly used to create the lightsword core using a masked plane, then multiple Lightsword (Glow Only) effects can be added to create a rich, complex glow.

Inner Glow

Two glows are built-in to the effect. Varying the width of the inner and outer glows allows you to layer the glow and create a more natural falloff around the edges of the effect. The inner glow is controlled here, and the outer glow controls are found below.

- **Width:** Adjusts the overall width of the inner glow, in pixels.
- **Color:** Choose a color for the inner glow. The inner glow color should generally be set to a bright, highly saturated color. You can use the eyedropper to choose a color from the layer, or click the swatch to open a color picker and choose any color you prefer. You can also manually enter the color values for the red, green, and blue channels.
- **Alpha:** Adjusts the opacity of the inner glow.
- **Stability:** Lowering the stability causes the inner glow to fluctuate in size, making the blade appear unstable.
- **Flicker:** Sets the intensity of the flicker applied to the glow's brightness. This does not alter the shape of the glow.

Outer Glow

Two glows are built-in to the effect. Varying the width of the inner and outer glows allows you to layer the glow and create a more natural falloff around the edges of the effect. The outer glow is controlled here, and the inner glow controls are found above.

- **Width:** Adjusts the overall width of the inner glow, in pixels.
- **Color:** Choose a color for the inner glow. The outer glow color can be set to a similar color to the inner glow color, for a traditional look, or to an entirely different color to create a gradient in the glow. You can use the eyedropper to choose a color from the layer, or click the swatch to open a color picker and choose any color you prefer. You can also manually enter the color values for the red, green, and blue channels.
- **Alpha:** Adjusts the opacity of the inner glow.

Distortion

Distortion not only alters the edges of the core, to make them more irregular, but distorts the background layer where it is visible through the glow. If Distortion is reduced to 0 the edge will be regular and smooth.

- **Distortion:** Determine how irregular the edge of the core is. Lower values give a smoother, more refined effect. Higher values will make the edge irregular, and increasingly distort the background behind the glow of the effect. This can help to make the effect feel more convincing, as part of the scene.
- **Blend:** Choose the blend mode that is used to composite the effect onto the underlying layers.

2.7.22. Lightsword Ultra (2-Point Auto)

Ignite Pro provides the most efficient and high quality tools for creating lightsword effects, reducing the rotoscoping requirements and automating key visual elements such as the motion blur trails.



Lightsword Ultra (2-Point Auto) provides a customizable and fast method for creating lightswords. By placing two points in the frame, one at the hilt and one at the tip of the prop blade, the effect is quickly positioned. Extensive built-in distortion effects allow you to customize the shape of the blade for a variety of different results. Once the position is rotoscoped to the movement of the lightsword blade, Ignite Pro will automatically calculate the appropriate motion blur based on the speed at which the blade is moving, and the path interpolation settings you choose.

- **Preset Menu:** Choose from one of the built-in presets as a starting point for the effect. Presets should be chosen before you begin animating the effect's position.

Hilt

- **Position Menu:** The hilt position can be linked to another layer via the Position menu. Use the menu to select any other layer on your timeline, to apply the selected layer's position to the Hilt point. When a layer is selected, the Position values below serve as an offset from the selected layer's position.
- **Position:** The hilt position can be manually specified, using X (horizontal) and Y (vertical) values. When a layer is selected, these Position values serve as an offset from the selected layer's position.
- **Width:** Sets the width of the lightsaber core at the hilt. The width of the hilt and tip can be set separately, which is useful for creating perspective on the blade or creating tapered shapes.

Tip

- **Position Menu:** The tip position can be linked to another layer via the Position menu. Use the menu to select any other layer on your timeline, to apply the selected layer's position to the Hilt point. When

a layer is selected, the Position values below serve as an offset from the selected layer's position.

- **Position:** The tip position can be manually specified, using X (horizontal) and Y (vertical) values. When a layer is selected, these Position values serve as an offset from the selected layer's position.
- **Width:** Sets the width of the lightsaber core at the tip. The width of the hilt and tip can be set separately, which is useful for creating perspective on the blade or creating tapered shapes.

Extension

- **Extension:** Sets the length of the blade, as a percentage of the distance from the hilt to the tip. The lightsword extension can be keyframed to create the 'ignition' animation, whereby the lightsword blade extends out of the hilt, or contracts back in.

Core

The core is the central part of the effect which directly covers the prop blade.

- **Width:** The Width of the core can be adjusted, as a percentage of the width values set in the Tip and Hilt controls above. This control allows you to adjust the overall width with a single control, while retaining any taper created by the separate width values used in the hilt and tip controls.
- **Color:** Choose a color for the core. The core Color should generally be set slightly off white, in the direction of the color that will be used for the glow. You can use the eyedropper to choose a color from the layer, or click the swatch to open a color picker and choose any color you prefer. You can also manually enter the color values for the red, green, and blue channels.
- **Feather:** Adjusts the softness of the core's edges.
- **Mask:** Control whether masks applied to the layer affect the core.
 - **Disable:** Allows the glow to naturally wrap around the mask edges, for a softer result. This option is best when the object being masked is very near the lightsword blade
 - **Enable:** Cuts the glow off exactly at the edge of the mask. Masks should generally be enabled when there is a significant distance between the object being masked and the lightsword blade.
 - **Invert:** Reveals the glow outside the mask, while removing it inside.
- **Stability:** Lowering the Stability causes the core shape to fluctuate in size, making the blade appear unstable.

Distortion

Core Distortion changes the form of the effect's core.

- **Distortion:** Adjusts the amount of distortion applied to the core.
- **Type:** Distortion is based on fractal patterns. Choose the fractal pattern used to generate the distortion.
 - **Energy:** A pattern of thin, energetic strings.
 - **Fluid:** Replicates a pattern similar to the caustics created by looking through a volume of water.
 - **Heat:** Wavering distortion replicating a natural heat haze.
 - **Smoke:** Soft, billowing shapes like the texture of smoke.
- **Noise:** Adjust the settings used to control the distortion pattern.

- **Noise Scale:** Changes the size of the details contained in the distortion.
- **Bias:** Adjusts the balance between the initial fractal pattern and the sub-fractals that create finer levels of detail.
- **Complexity:** Increasing complexity adds more sub-levels of noise, breaking up the distortion into finer details.
- **Invert:** Reverses the fractal patterns for an alternate result.
- **Seed:** Each seed value creates a unique pattern, to add variety to the effect.
- **Animation:** Adjust the motion behavior applied to the distortion.
 - **Wind Direction:** Rotate the wheel to select the angle of motion applied to the effect.
 - **Wind Speed:** Adjusts the intensity of the movement.
 - **Noise Speed:** Adjusts the speed of the sub-fractals, independently from the speed of the initial fractal pattern.
 - **Motion Blur:** Adds an angle blur aligned with the Wind Direction. Increasing the value adds more blur.
- **Blend On Top: Enabling** this option renders both the original lightsword effect and the distortion. **Disabling** it renders only the distorted results.
- **Use In Glow: Enabling** this option creates the glow based on the shape of the distorted core. **Disabling** generates the glow based on the original undistorted shape.

Flicker

Adding flicker to the effect can make it more exciting, interesting, and less refined.

- **Amount:** Adjusts the scale of the flickering, to control its intensity.
- **Probability:** Adjusts how often the flicker affects the blade. Set the percentage of frames which will be randomly altered by the flicker.
- **Frequency:** Adjusts how many frames in sequence make up the flicker.
- **Seed:** Each seed value gives a unique pattern to the flicker.

Inner Glow

Two glows are built-in to the effect. Varying the width of the inner and outer glows allows you to layer the glow and create a more natural falloff around the edges of the effect. The inner glow is controlled here, and the outer glow controls are found below.

- **Width:** Adjusts the overall width of the inner glow, in pixels.
- **Color:** Choose a color for the inner glow. The inner glow color should generally be set to a bright, highly saturated color. You can use the eyedropper to choose a color from the layer, or click the swatch to open a color picker and choose any color you prefer. You can also manually enter the color values for the red, green, and blue channels.
- **Alpha:** Adjusts the opacity of the inner glow.
- **Stability:** Lowering the stability causes the inner glow to fluctuate in size, making the blade appear unstable.
- **Flicker:** Sets the intensity of the flicker applied to the glow's brightness. This does not alter the shape of the glow.

- **Falloff:** Shifts the weight of the glow's gradient, to control how quickly it fades out as it gets farther from the core.
- **Mask:** Control whether masks applied to the layer affect the glow.
 - **Disable:** Allows the glow to naturally wrap around the mask edges, for a softer result. This option is best when the object being masked is very near the lightsword blade
 - **Enable:** Cuts the glow off exactly at the edge of the mask. Masks should generally be enabled when there is a significant distance between the object being masked and the lightsword blade.
 - **Invert:** Reveals the glow outside the mask, while removing it inside.

Distortion

Inner Glow Distortion changes the form of the effect's inner glow.

- **Distortion:** Adjusts the amount of distortion applied to the inner glow.
- **Type:** Distortion is based on fractal patterns. Choose the fractal pattern used to generate the distortion.
 - **Energy:** A pattern of thin, energetic strings.
 - **Fluid:** Replicates a pattern similar to the caustics created by looking through a volume of water.
 - **Heat:** Wavering distortion replicating a natural heat haze.
 - **Smoke:** Soft, billowing shapes like the texture of smoke.
- **Noise:** Adjust the settings used to control the distortion pattern.
 - **Noise Scale:** Changes the size of the details contained in the distortion.
 - **Bias:** Adjusts the balance between the initial fractal pattern and the sub-fractals that create finer levels of detail.
 - **Complexity:** Increasing complexity adds more sub-levels of noise, breaking up the distortion into finer details.
 - **Invert:** Reverses the fractal patterns for an alternate result.
 - **Seed:** Each seed value creates a unique pattern, to add variety to the effect.
- **Animation:** Adjust the motion behavior applied to the distortion.
 - **Wind Direction:** Rotate the wheel to select the angle of motion applied to the effect.
 - **Wind Speed:** Adjusts the intensity of the movement.
 - **Noise Speed:** Adjusts the speed of the sub-fractals, independently from the speed of the initial fractal pattern.
 - **Motion Blur:** Adds an angle blur aligned with the Wind Direction. Increasing the value adds more blur.

Outer Glow

Two glows are built-in to the effect. Varying the width of the inner and outer glows allows you to layer the glow and create a more natural falloff around the edges of the effect. The outer glow is controlled here, and the inner glow controls are found above.

- **Width:** Adjusts the overall width of the inner glow, in pixels.
- **Color:** Choose a color for the inner glow. The outer glow color can be set to a similar color to the inner glow color, for a traditional look, or to an entirely different color to create a gradient in the glow.

You can use the eyedropper to choose a color from the layer, or click the swatch to open a color picker and choose any color you prefer. You can also manually enter the color values for the red, green, and blue channels.

- **Alpha:** Adjusts the opacity of the inner glow.
- **Falloff:** Shifts the weight of the glow's gradient, to control how quickly it fades out as it gets farther from the core.
- **Mask:** Control whether masks applied to the layer affect the outer glow.
 - **Disable:** Allows the glow to naturally wrap around the mask edges, for a softer result. This option is best when the object being masked is very near the lightsword blade
 - **Enable:** Cuts the glow off exactly at the edge of the mask. Masks should generally be enabled when there is a significant distance between the object being masked and the lightsword blade.
 - **Invert:** Reveals the glow outside the mask, while removing it inside.

Distortion

Outer Glow Distortion changes the form of the effect's outer glow.

- **Distortion:** Adjusts the amount of distortion applied to the inner glow.
- **Type:** Distortion is based on fractal patterns. Choose the fractal pattern used to generate the distortion.
 - **Energy:** A pattern of thin, energetic strings.
 - **Fluid:** Replicates a pattern similar to the caustics created by looking through a volume of water.
 - **Heat:** Wavering distortion replicating a natural heat haze.
 - **Smoke:** Soft, billowing shapes like the texture of smoke.
- **Noise:** Adjust the settings used to control the distortion pattern.
 - **Noise Scale:** Changes the size of the details contained in the distortion.
 - **Bias:** Adjusts the balance between the initial fractal pattern and the sub-fractals that create finer levels of detail.
 - **Complexity:** Increasing complexity adds more sub-levels of noise, breaking up the distortion into finer details.
 - **Invert:** Reverses the fractal patterns for an alternate result.
 - **Seed:** Each seed value creates a unique pattern, to add variety to the effect.
- **Animation:** Adjust the motion behavior applied to the distortion.
 - **Wind Direction:** Rotate the wheel to select the angle of motion applied to the effect.
 - **Wind Speed:** Adjusts the intensity of the movement.
 - **Noise Speed:** Adjusts the speed of the sub-fractals, independently from the speed of the initial fractal pattern.
 - **Motion Blur:** Adds an angle blur aligned with the Wind Direction. Increasing the value adds more blur.

Mask

- **From:** Choose a layer whose shape will be used to mask the
- **Use Source:**

Path Interpolation

During rapid movement motion blur should cause the hilt and tip to fan out, creating a motion trail. Path interpolation is used to create a natural curve along the hilt and tip ends.

- **Scale:** Reducing the scale to zero will remove all path interpolation, resulting in straight lines drawn at the hilt and tip ends of the blade. Increasing the scale will create path interpolation and curve the ends.
- **Hilt:** When the blade is swinging toward or away from the camera, you can adjust the Hilt angle to correspond to the movement of the prop's hilt, and get accurate motion simulation.
- **Tip:** When the blade is swinging toward or away from the camera, you can adjust the Tip angle to correspond to the movement of the prop's tip, and get accurate motion simulation.
- **Motion Persistence:** Ignite Pro automatically attempts to create a natural trail shape based on the movement of the hilt and tip points, based on the expected behavior of a blade in motion. The duration of the trail is determined by the motion persistence. Increasing the value will cause the trail to remain visible for more frames, thus creating a larger trail. Reducing the value will create a smaller trail.
 - Note that motion persistence is restricted by the Auto Scale Persistence properties, if Auto Scale is activated (see below).
- **Persistence Shift:** Shifts the position of the motion blur in relation to the exact hilt and tip locations. This adjusts the trail to be either in front (1.0), behind (0.0) or in the middle (0.5) of the control point positions. At the default of 0.0 this means that on frames containing fast moving blades you should position the control points on the leading edges of the blade.

Auto Scale Persistence

Auto Scale provides additional control over the generation of the persistence trail, determining when the trail is generated. These settings can be used to match the trail to the natural motion blur found in your footage, which may vary depending on your camera settings.

- **Auto Scale:** Choose how the scale persistence is calculated.
 - **Enable:** Uses the thresholds below to calculate the motion persistence.
 - **Disable:** Uses only the Motion Persistence property. Therefore the trail will always be generated even during small movements. A high Motion Persistence value combined with Auto Scale turned off will create a long, unnatural trail. Increasing the motion persistence over 180 can create extreme streaking. This isn't suitable for lightsabers but can be an interesting effect in its own right.
- **Speed Threshold:** Used to restrict the activation of motion persistence. Below the specified threshold, the lightsword shape will be drawn without any trail. This ensures that the blade does not look indistinct when it is moving slowly. As soon as the speed threshold is exceeded, the trail will be generated according to the motion persistence setting.
- **Swing Threshold:** Used to restrict the activation of motion persistence. Below the specified threshold, the lightsword shape will be drawn without any trail. This ensures that the blade does not look indistinct when it is moving slowly. As soon as the swing threshold is exceeded, the trail will be

generated according to the motion persistence setting.

- **Minimum Persistence:** Determines how much motion trail is generated on frames where the speed and swing thresholds are not met. Setting this to 0.0 ensures the blade shape is defined solely by the core, hilt and tip properties. Raising the value will generate a blur trail even during minor movements.

Background Distortion

Background Distortion warps the background layer where it is visible through the glow of the lightsword effect.

- **Distortion:** Sets the intensity of the distortion applied to the background within the glow. Lower values give a smoother, more refined effect. Higher values will make the edge irregular, and increasingly distort the background behind the glow of the effect. This can help to make the effect feel more convincing, as part of the scene.
- **Type:** Distortion is based on fractal patterns. Choose the fractal pattern used to generate the distortion.
 - **Energy:** A pattern of thin, energetic strings.
 - **Fluid:** Replicates a pattern similar to the caustics created by looking through a volume of water.
 - **Heat:** Wavering distortion replicating a natural heat haze.
 - **Smoke:** Soft, billowing shapes like the texture of smoke.
- **Noise:** Adjust the settings used to control the distortion pattern.
 - **Noise Scale:** Changes the size of the details contained in the distortion.
 - **Bias:** Adjusts the balance between the initial fractal pattern and the sub-fractals that create finer levels of detail.
 - **Complexity:** Increasing complexity adds more sub-levels of noise, breaking up the distortion into finer details.
 - **Invert:** Reverses the fractal patterns for an alternate result.
 - **Seed:** Each seed value creates a unique pattern, to add variety to the effect.
- **Animation:** Adjust the motion behavior applied to the distortion.
 - **Wind Direction:** Rotate the wheel to select the angle of motion applied to the effect.
 - **Wind Speed:** Adjusts the intensity of the movement.
 - **Noise Speed:** Adjusts the speed of the sub-fractals, independently from the speed of the initial fractal pattern.
 - **Motion Blur:** Adds an angle blur aligned with the Wind Direction. Increasing the value adds more blur.
- **Blend:** Choose the blend mode that is used to composite the effect onto the underlying layers.

2.7.23. Lightsword Ultra (4-Point Manual)

Ignite Pro provides the most efficient and high quality tools for creating lightsword effects, reducing the rotoscoping requirements and automating key visual elements such as the motion blur trails.



Lightsword Ultra (4-Point Manual) provides precise control over the lightsword shape by using four control points, two at the hilt and two at the tip of the prop blade. This allows you to precisely match the shape to the motion blur of the prop blade created by the camera. Both ends of the effect will be curved based on their motion and the Path Interpolation settings you have selected, to create a natural shape for the moving blade. Extensive built-in distortion effects allow you to customize the details of the blade for a variety of different results.

Hilt

- **Position 1 Menu:** The left hilt corner. Hilt position 1 can be linked to another layer via the Position menu. Use the menu to select any other layer on your timeline, to apply the selected layer's position to the Hilt point. When a layer is selected, the Position values below serve as an offset from the selected layer's position.
- **Position 1:** The left hilt corner. Hilt position 1 can be manually specified, using X (horizontal) and Y (vertical) values. When a layer is selected, these Position values serve as an offset from the selected layer's position.
- **Position 2 Menu:** The right hilt corner. Hilt position 2 can be linked to another layer via the Position menu. Use the menu to select any other layer on your timeline, to apply the selected layer's position to the Hilt point. When a layer is selected, the Position values below serve as an offset from the selected layer's position.
- **Position 2:** The right hilt corner. Hilt position 2 can be manually specified, using X (horizontal) and Y (vertical) values. When a layer is selected, these Position values serve as an offset from the selected layer's position.

- **Width:** Sets the width of the lightsaber core at the hilt. The width of the hilt and tip can be set separately, which is useful for creating perspective on the blade or creating tapered shapes.

Tip

- **Position 1 Menu:** The left tip corner. Tip position 1 can be linked to another layer via the Position menu. Use the menu to select any other layer on your timeline, to apply the selected layer's position to the Hilt point. When a layer is selected, the Position values below serve as an offset from the selected layer's position.
- **Position 1:** The left tip corner. Tip position 1 can be manually specified, using X (horizontal) and Y (vertical) values. When a layer is selected, these Position values serve as an offset from the selected layer's position.
- **Position 2 Menu:** The right tip corner. Tip position 2 can be linked to another layer via the Position menu. Use the menu to select any other layer on your timeline, to apply the selected layer's position to the Hilt point. When a layer is selected, the Position values below serve as an offset from the selected layer's position.
- **Position 2:** The right tip corner. Tip position 2 can be manually specified, using X (horizontal) and Y (vertical) values. When a layer is selected, these Position values serve as an offset from the selected layer's position.
- **Width:** Sets the width of the lightsaber core at the tip. The width of the hilt and tip can be set separately, which is useful for creating perspective on the blade or creating tapered shapes.

Extension

- **Extension:** Sets the length of the blade, as a percentage of the distance from the hilt to the tip. The lightsword extension can be keyframed to create the 'ignition' animation, whereby the lightsword blade extends out of the hilt, or contracts back in.

Core

The core is the central part of the effect which directly covers the prop blade.

- **Width:** The Width of the core can be adjusted, as a percentage of the width values set in the Tip and Hilt controls above. This control allows you to adjust the overall width with a single control, while retaining any taper created by the separate width values used in the hilt and tip controls.
- **Color:** Choose a color for the core. The core Color should generally be set slightly off white, in the direction of the color that will be used for the glow. You can use the eyedropper to choose a color from the layer, or click the swatch to open a color picker and choose any color you prefer. You can also manually enter the color values for the red, green, and blue channels.
- **Feather:** Adjusts the softness of the core's edges.
- **Stability:** Lowering the Stability causes the core shape to fluctuate in size, making the blade appear unstable.
- **Mask:** Control whether masks applied to the layer affect the glow.
 - **Disable:** Allows the glow to naturally wrap around the mask edges, for a softer result. This option is best when the object being masked is very near the lightsword blade

- **Enable:** Cuts the glow off exactly at the edge of the mask. Masks should generally be enabled when there is a significant distance between the object being masked and the lightsword blade.
- **Invert:** Reveals the glow outside the mask, while removing it inside.

Inner Glow

Two glows are built-in to the effect. Varying the width of the inner and outer glows allows you to layer the glow and create a more natural falloff around the edges of the effect. The inner glow is controlled here, and the outer glow controls are found below.

- **Width:** Adjusts the overall width of the inner glow, in pixels.
- **Color:** Choose a color for the inner glow. The inner glow color should generally be set to a bright, highly saturated color. You can use the eyedropper to choose a color from the layer, or click the swatch to open a color picker and choose any color you prefer. You can also manually enter the color values for the red, green, and blue channels.
- **Alpha:** Adjusts the opacity of the inner glow.
- **Stability:** Lowering the stability causes the inner glow to fluctuate in size, making the blade appear unstable.
- **Flicker:** Sets the intensity of the flicker applied to the glow's brightness. This does not alter the shape of the glow.

Outer Glow

Two glows are built-in to the effect. Varying the width of the inner and outer glows allows you to layer the glow and create a more natural falloff around the edges of the effect. The outer glow is controlled here, and the inner glow controls are found above.

- **Width:** Adjusts the overall width of the inner glow, in pixels.
- **Color:** Choose a color for the inner glow. The outer glow color can be set to a similar color to the inner glow color, for a traditional look, or to an entirely different color to create a gradient in the glow. You can use the eyedropper to choose a color from the layer, or click the swatch to open a color picker and choose any color you prefer. You can also manually enter the color values for the red, green, and blue channels.
- **Alpha:** Adjusts the opacity of the inner glow.

Path interpolation

During rapid movement motion blur should cause the hilt and tip to fan out, creating a motion trail. Path interpolation is used to create a natural curve along the hilt and tip ends.

- **Scale:** Reducing the scale to zero will remove all path interpolation, resulting in straight lines drawn at the hilt and tip ends of the blade. Increasing the scale will create path interpolation and curve the ends.
- **Hilt 1:** When the blade is swinging toward or away from the camera, you can adjust the Hilt angle to correspond to the movement of the prop's hilt, and get accurate motion simulation.

- **Hilt 2:** When the blade is swinging toward or away from the camera, you can adjust the Hilt angle to correspond to the movement of the prop's hilt, and get accurate motion simulation.
- **Tip 1:** When the blade is swinging toward or away from the camera, you can adjust the Tip angle to correspond to the movement of the prop's tip, and get accurate motion simulation.
- **Tip 2:** When the blade is swinging toward or away from the camera, you can adjust the Tip angle to correspond to the movement of the prop's tip, and get accurate motion simulation.

Distortion

Distortion not only alters the edges of the core, to make them more irregular, but distorts the background layer where it is visible through the glow. If Distortion is reduced to 0 the edge will be regular and smooth.

- **Distortion:** Determine how irregular the edge of the core is. Lower values give a smoother, more refined effect. Higher values will make the edge irregular, and increasingly distort the background behind the glow of the effect. This can help to make the effect feel more convincing, as part of the scene.
- **Blend:** Choose the blend mode that is used to composite the effect onto the underlying layers.

2.7.24. Lightsword Ultra (Glow Only)

Ignite Pro provides the most efficient and high quality tools for creating lightsword effects, reducing the rotoscoping requirements and automating key visual elements such as the motion blur trails.



Lightsword Ultra (Glow Only) allows you to create an external glow to any layer's shape. You can use masks to define or animate a layer's shape, then add a glow around the outside of that shape. This technique is commonly used to create the lightsword core using a masked plane, then multiple Lightsword (Glow Only) effects can be added to create a rich, complex glow. Extensive built-in distortion effects allow you to customize the shape of the glow for a variety of different results.

- **Preset Menu:** Choose from one of the built-in presets as a starting point for the effect. Presets should be chosen before you begin animating the effect's position.
- **Source:** Choose any layer on the timeline to create a glow based on its shape.

Flicker

Adding flicker to the effect can make it more exciting, interesting, and less refined.

- **Amount:** Adjusts the scale of the flickering, to control its intensity.
- **Probability:** Adjusts how often the flicker affects the blade. Set the percentage of frames which will be randomly altered by the flicker.
- **Frequency:** Adjusts how many frames in sequence make up the flicker.
- **Seed:** Each seed value gives a unique pattern to the flicker.

Inner Glow

Two glows are built-in to the effect. Varying the width of the inner and outer glows allows you to layer the

glow and create a more natural falloff around the edges of the effect. The inner glow is controlled here, and the outer glow controls are found below.

- **Width:** Adjusts the overall width of the inner glow, in pixels.
- **Color:** Choose a color for the inner glow. The inner glow color should generally be set to a bright, highly saturated color. You can use the eyedropper to choose a color from the layer, or click the swatch to open a color picker and choose any color you prefer. You can also manually enter the color values for the red, green, and blue channels.
- **Alpha:** Adjusts the opacity of the inner glow.
- **Stability:** Lowering the stability causes the inner glow to fluctuate in size, making the blade appear unstable.
- **Flicker:** Sets the intensity of the flicker applied to the glow's brightness. This does not alter the shape of the glow.

Distortion

Inner Glow Distortion changes the form of the effect's inner glow.

- **Distortion:** Adjusts the amount of distortion applied to the inner glow.
- **Type:** Distortion is based on fractal patterns. Choose the fractal pattern used to generate the distortion.
 - **Energy:** A pattern of thin, energetic strings.
 - **Fluid:** Replicates a pattern similar to the caustics created by looking through a volume of water.
 - **Heat:** Wavering distortion replicating a natural heat haze.
 - **Smoke:** Soft, billowing shapes like the texture of smoke.
- **Noise:** Adjust the settings used to control the distortion pattern.
 - **Noise Scale:** Changes the size of the details contained in the distortion.
 - **Bias:** Adjusts the balance between the initial fractal pattern and the sub-fractals that create finer levels of detail.
 - **Complexity:** Increasing complexity adds more sub-levels of noise, breaking up the distortion into finer details.
 - **Invert:** Reverses the fractal patterns for an alternate result.
 - **Seed:** Each seed value creates a unique pattern, to add variety to the effect.
- **Animation:** Adjust the motion behavior applied to the distortion.
 - **Wind Direction:** Rotate the wheel to select the angle of motion applied to the effect.
 - **Wind Speed:** Adjusts the intensity of the movement.
 - **Noise Speed:** Adjusts the speed of the sub-fractals, independently from the speed of the initial fractal pattern.
 - **Motion Blur:** Adds an angle blur aligned with the Wind Direction. Increasing the value adds more blur.

Outer Glow

Two glows are built-in to the effect. Varying the width of the inner and outer glows allows you to layer the glow and create a more natural falloff around the edges of the effect. The outer glow is controlled here, and

the inner glow controls are found above.

- **Width:** Adjusts the overall width of the inner glow, in pixels.
- **Color:** Choose a color for the inner glow. The outer glow color can be set to a similar color to the inner glow color, for a traditional look, or to an entirely different color to create a gradient in the glow. You can use the eyedropper to choose a color from the layer, or click the swatch to open a color picker and choose any color you prefer. You can also manually enter the color values for the red, green, and blue channels.
- **Alpha:** Adjusts the opacity of the inner glow.

Distortion

Outer Glow Distortion changes the form of the effect's outer glow.

- **Distortion:** Adjusts the amount of distortion applied to the outer glow.
- **Type:** Distortion is based on fractal patterns. Choose the fractal pattern used to generate the distortion.
 - **Energy:** A pattern of thin, energetic strings.
 - **Fluid:** Replicates a pattern similar to the caustics created by looking through a volume of water.
 - **Heat:** Wavering distortion replicating a natural heat haze.
 - **Smoke:** Soft, billowing shapes like the texture of smoke.
- **Noise:** Adjust the settings used to control the distortion pattern.
 - **Noise Scale:** Changes the size of the details contained in the distortion.
 - **Bias:** Adjusts the balance between the initial fractal pattern and the sub-fractals that create finer levels of detail.
 - **Complexity:** Increasing complexity adds more sub-levels of noise, breaking up the distortion into finer details.
 - **Invert:** Reverses the fractal patterns for an alternate result.
 - **Seed:** Each seed value creates a unique pattern, to add variety to the effect.
- **Animation:** Adjust the motion behavior applied to the distortion.
 - **Wind Direction:** Rotate the wheel to select the angle of motion applied to the effect.
 - **Wind Speed:** Adjusts the intensity of the movement.
 - **Noise Speed:** Adjusts the speed of the sub-fractals, independently from the speed of the initial fractal pattern.
 - **Motion Blur:** Adds an angle blur aligned with the Wind Direction. Increasing the value adds more blur.

Mask

- **From:** Choose a layer whose shape will be used to mask the
- **Use Source:**

Background Distortion

Background Distortion warps the background layer where it is visible through the glow of the lightsword

effect.

- **Distortion:** Sets the intensity of the distortion applied to the background within the glow. Lower values give a smoother, more refined effect. Higher values will make the edge irregular, and increasingly distort the background behind the glow of the effect. This can help to make the effect feel more convincing, as part of the scene.
- **Type:** Distortion is based on fractal patterns. Choose the fractal pattern used to generate the distortion.
 - **Energy:** A pattern of thin, energetic strings.
 - **Fluid:** Replicates a pattern similar to the caustics created by looking through a volume of water.
 - **Heat:** Wavering distortion replicating a natural heat haze.
 - **Smoke:** Soft, billowing shapes like the texture of smoke.
- **Noise:** Adjust the settings used to control the distortion pattern.
 - **Noise Scale:** Changes the size of the details contained in the distortion.
 - **Bias:** Adjusts the balance between the initial fractal pattern and the sub-fractals that create finer levels of detail.
 - **Complexity:** Increasing complexity adds more sub-levels of noise, breaking up the distortion into finer details.
 - **Invert:** Reverses the fractal patterns for an alternate result.
 - **Seed:** Each seed value creates a unique pattern, to add variety to the effect.
- **Animation:** Adjust the motion behavior applied to the distortion.
 - **Wind Direction:** Rotate the wheel to select the angle of motion applied to the effect.
 - **Wind Speed:** Adjusts the intensity of the movement.
 - **Noise Speed:** Adjusts the speed of the sub-fractals, independently from the speed of the initial fractal pattern.
 - **Motion Blur:** Adds an angle blur aligned with the Wind Direction. Increasing the value adds more blur.
- **Blend:** Choose the blend mode that is used to composite the effect onto the underlying layers.

2.7.25. Neon Path

A useful tool for creating animated Neon Path effects. You can use a Text Layer or a Mask to define the shape of the effect, and then control the position and movement of the Neon line on the selected path.

- **Preset:** Use this menu to choose from one of the built-in presets.
- **Path From:** Neon path effects take their shape from another layer. Choose the kind of source to be used.
 - **Mask:** Allows you to use the Masks from a different layer on the timeline.
 - **Text:** Allows you to use the shape of a text layer as the path source.
- **Layer:** Choose another layer from the timeline, to be used as the path source.

Path

- **Start Width:** Set the width of the path, in pixels, at its starting point.
- **End Width:** Set the width of the path, in pixels, at its ending point.
- **Start Alpha:** Sets the opacity of the path at its start point.
- **End Alpha:** Sets the opacity of the path at its end point.
- **Falloff:** Shifts the transition between the Start Width and End Width. Positive values increase the influence of the Start Width. Negative Values increase the influence of the End Width.
- **Evolution:** Shifts the position of the effect along the source path.
- **Extension:** Adjusts the length of the neon path effect, as a percentage of the total length of the source path.

Core

The core is the central part of the effect, which is typically the brightest.

- **Width:** The Width of the core can be adjusted, as a percentage of the width values set in the Path controls above.
- **Color:** The core Color should generally be set slightly off white, in the direction of the color that will be used for the glow. You can use the eyedropper to choose a color from the viewer, or click the swatch to open a color picker and choose any color you prefer. You can also manually enter the color values for the red, green, and blue channels.
- **Feather:** The edges of the core can be softened with the Feather control.
- **Mask Mode:** Enable, Disable, or Invert Mask mode using this menu.
- **Stability:** Lowering the Stability causes the core shape to fluctuate in size.

Distortion

The Core Distortion controls allow you to procedurally alter the shape of the core to create a variety of animated results.

- **Distortion:** Controls the strength of distortion that is applied to the core.

- **Type:** There are four types of distortion available, each of which gives a different result.
 - **Energy:** A pattern of thin, energetic strings.
 - **Fluid:** Replicates a pattern similar to the caustics created by looking through a volume of water.
 - **Heat:** Replicates the haze and diffusion created by heat waves.
 - **Smoke:** Soft, billowing distortion, like the texture of smoke.
- **Noise:** The noise that defines the shape of the distortion can be modified using these properties. They correspond to the controls in the standalone Distortion effects.
- **Animation:** The movement of the noise that defines the shape of the distortion can be modified using these properties. They correspond to the controls in the standalone Distortion effects.
- **Blend on Top:** Enabling this option will apply the glow above the core, potentially altering the core's color.
- **Use in Glow:** Enabling this option will adaptively shift the shape of the glow of the effect to match the distortion of the core shape.

Flicker

The Flicker controls will affect the movement of the overall effect.

- **Amount:** Controls the amount of flicker applied to the effect.
- **Probability:** Adjusts how regular the flicker is. Higher probability settings will make a more regular flicker.
- **Frequency:** Adjusts the timing between the flickering, Higher values will increase the speed of the flicker.
- **Mode:** Choose how the flicker will be generated.
 - **Per Path:** The entire effect flickers as a whole.
 - **Per Character:** Each character flickers independently.
- **Seed:** Changing the seed will randomize the pattern of the flicker.

Inner Glow

Two glows are built-in to the effect. This makes it possible to create an intense inner glow, with a low width so that it is close to the core, and a wider, diffuse, less bright outer glow.

- **Width:** The width of the inner glow can be adjusted, in pixels.
- **Color:** The inner glow color should generally be set to a bright, vibrant color.
- **Alpha:** Adjusts the transparency of the inner glow layer.
- **Stability:** Lowering the stability causes the glow shape to fluctuate in size.
- **Flicker:** Sets the intensity of brightness flicker applied to the glow. This does not alter the shape of the glow.
- **Falloff:** Alters the range over which the glow edges are feathered. Lower numbers will create a harder edge to the glow.
- **Mask:** Controls whether masks applied to the layer affect the glow.
 - **Disable** will allow the glow to naturally wrap around the mask edges, for a softer result.
 - **Enable** will cut the glow off exactly at the edge of the mask.
 - **Invert** will reveal the glow outside the mask, while removing it inside.

Distortion

The Inner Glow Distortion controls allow you to procedurally alter the shape of the inner glow to create a variety of animated results.

- **Distortion:** Controls the strength of distortion that is applied to the inner glow.
- **Type:** There are four types of distortion available, each of which gives a different result.
 - **Energy:** A pattern of thin, energetic strings.
 - **Fluid:** Replicates a pattern similar to the caustics created by looking through a volume of water.
 - **Heat:** Replicates the haze and diffusion created by heat waves.
 - **Smoke:** Soft, billowing distortion, like the texture of smoke.
- **Noise:** The noise that defines the shape of the distortion can be modified using these properties. They correspond to the controls in the standalone Distortion effects.
- **Animation:** The movement of the noise that defines the shape of the distortion can be modified using these properties. They correspond to the controls in the standalone Distortion effects.

Outer Glow

Two glows are built-in to the effect. This makes it possible to create an intense inner glow, with a low width so that it is close to the core, and a wider, diffuse, less bright outer glow.

- **Width:** The width of the outer glow can be adjusted, in pixels.
- **Color:** The outer glow color can be set to a similar color to the inner glow color, for a traditional look, or to an entirely different color to create a gradient in the glow.
- **Alpha:** Adjusts the transparency of the inner glow layer.
- **Stability:** Lowering the stability causes the core shape to fluctuate in size.
- **Flicker:** Sets the intensity of brightness flicker applied to the glow. This does not alter the shape of the glow.
- **Falloff:** Alters the range over which the glow edges are feathered. Lower numbers will create a harder edge to the glow.
- **Mask:** Controls whether masks applied to the layer affect the glow.
 - **Disable** will allow the glow to naturally wrap around the mask edges, for a softer result.
 - **Enable** will cut the glow off exactly at the edge of the mask.
 - **Invert** will reveal the glow outside the mask, while removing it inside.

Distortion

The Outer Glow Distortion controls allow you to procedurally alter the shape of the outer glow to create a variety of animated results.

- **Distortion:** Controls the strength of distortion that is applied to the outer glow.
- **Type:** There are four types of distortion available, each of which gives a different result.
 - **Energy:** A pattern of thin, energetic strings.
 - **Fluid:** Replicates a pattern similar to the caustics created by looking through a volume of water.
 - **Heat:** Replicates the haze and diffusion created by heat waves.

- **Smoke:** Soft, billowing distortion, like the texture of smoke.
- **Noise:** The noise that defines the shape of the distortion can be modified using these properties. They correspond to the controls in the standalone Distortion effects.
- **Animation:** The movement of the noise that defines the shape of the distortion can be modified using these properties. They correspond to the controls in the standalone Distortion effects.

Mask

- **From:** Choose the layer which will be used to mask the Neon Path Effect.
- **Use Source:** Enable or disable masking from the selected source.
- **Use Text Alpha:** When the **Path From** property is set to a text layer, this Property will appear, so you can enable or disable masking based on the Text alpha.

Background Distortion

The Background Distortion controls allow you to procedurally distort the image behind the Neon Path, to improve the realism of the effect's integration into the scene.

- **Distortion:** Controls the strength of distortion that is applied to the background.
- **Type:** There are four types of distortion available, each of which gives a different result.
 - **Energy:** A pattern of thin, energetic strings.
 - **Fluid:** Replicates a pattern similar to the caustics created by looking through a volume of water.
 - **Heat:** Replicates the haze and diffusion created by heat waves.
 - **Smoke:** Soft, billowing distortion, like the texture of smoke.
- **Noise:** The noise that defines the shape of the distortion can be modified using these properties. They correspond to the controls in the standalone Distortion effects.
- **Animation:** The movement of the noise that defines the shape of the distortion can be modified using these properties. They correspond to the controls in the standalone Distortion effects.
- **Blend:** Choose how the effect is combined with the layer to which it is applied.

2.7.26. PiP (Picture in Picture)

Quickly create a picture-in-picture effect using any layer in your timeline, and adjust the size and position of the PiP effect.

- **Position:** Choose the location within the frame where the Picture-in-Picture image is placed.
- **Scale:** Sets the size of the image, as a percentage of the frame width.
- **Margin:** Sets the width, in pixels, of the space between the picture-in picture and the edge of the frame.

2.7.27. Pond Ripple

Creates randomly placed ripples which expand and distort the layer, simulating the effect of rainfall on a pond. The size and behavior of the ripples can be adjusted.



- **Seed:** Changing the seed randomizes the placement of the individual ripples.
- **Droplets Per Second:** Sets the number of new ripples that will begin per second.

Droplet Shape

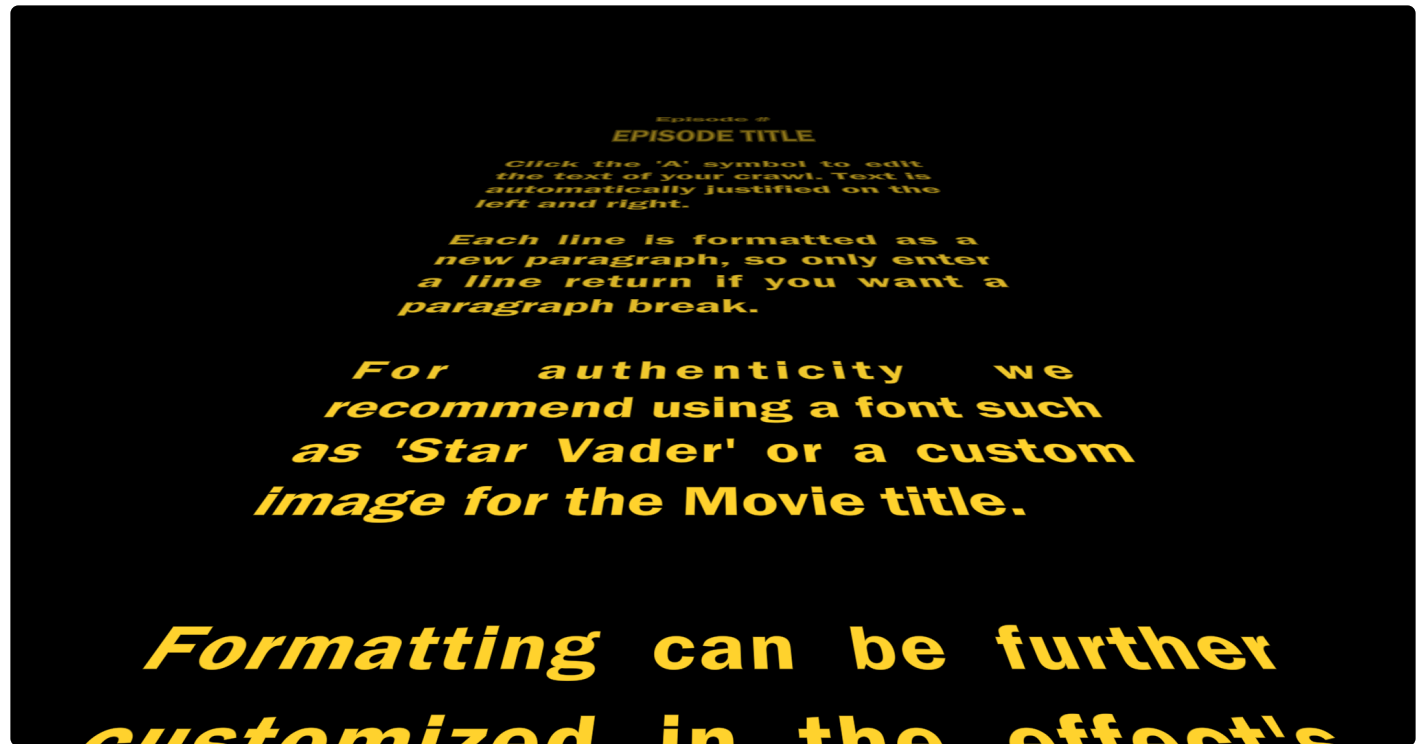
- **Size:** Sets the width of the rings of the droplets. Higher values softens the ring detail.
- **Number of Ripples:** The total number of rings per droplet.
- **Viscosity:** Adjusting the viscosity alters the speed of the ripple movement, and the degree to which they alter the liquid surface.
- **Displacement:** Adjusts the amount of displacement applied to the image below the ripples.

Droplet Animation

- **Speed:** Sets the speed at which the ripples will move away from the center point where they originate.
- **Lifetime:** Sets the total duration of each ripple before it disappears entirely.

2.7.28. Pulp Sci-Fi Title Crawl

An instant way to get perfect Star Wars and Flash Gordon-style openings, complete with separate sections for the teaser, main title and the crawl itself.



The text is entered into the Teaser, Movie Title, Episode Number, Episode Title and Text Crawl properties. Clicking the font 'A' symbol opens a new window for editing the Movie Title and Text Crawl text.

The formatting and animation of the teaser, movie title and text crawl can be adjusted in separate property groups, with the text reflowing automatically to suit the classic pulp look.

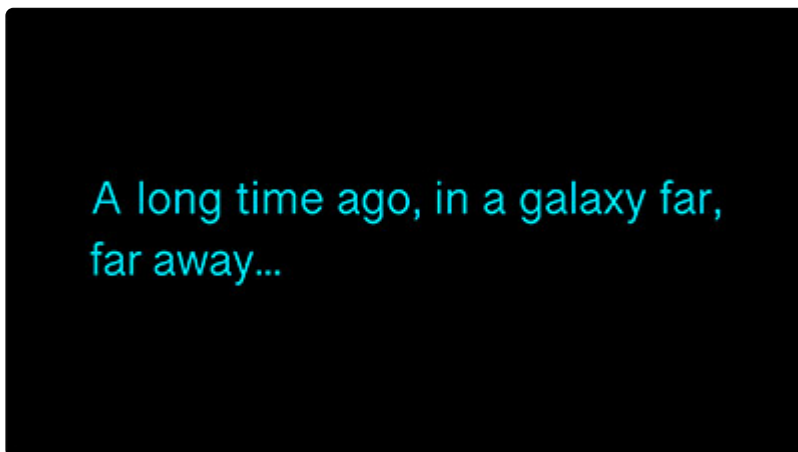


The Pulp Sci-Fi Title Crawl creates a series of elements which are displayed sequentially. On the left is the Teaser, followed by the Movie Title, and then the main Text Crawl, which includes the Episode Number, Episode Title, and Story.

The Movie Title can also be switched to use an image instead of text. This can be useful for creating a more authentic appearance when recreating movie logos, or for creating titles that incorporate graphic elements.

- **Teaser:** A stationary title, which is the first element shown. Think, “A long time ago, in a galaxy far, far away...” Enter the text you wish to use directly into the text box to the right of the property name.
- **Movie Title:** The title of your film. Click the A icon to open the text box where you can enter your movie title. The separate text box allows you to easily enter line breaks and see what each line will contain.
- **Episode Number:** The first line of the text crawl, typically used to display the episode number. Leave the text field blank to remove this element. Enter the text you wish to use directly into the text box to the right of the property name.
- **Episode Title:** The second line of the text crawl, typically used to display the specific name of this episode. Leave the text field blank to remove this element. Enter the text you wish to use directly into the text box to the right of the property name.
- **Text Crawl:** The main body of the text crawl. Click the A icon to open the text box where you can enter your text crawl. The separate text box allows you to easily enter line breaks and separate paragraphs, and preview the text layout while editing its contents.

Teaser



Use these controls to adjust the appearance and timing of the Teaser element.

Appearance:

- **Color:** Select a color for the Teaser element. You can use the eyedropper to choose a color from the layer, or click the swatch to open a color picker and choose any color you prefer. You can also manually enter the color values for the red, green, and blue channels.
- **Font:** Choose a font for the Teaser element. All fonts currently installed on your system, will be available in this menu.
- **Style:** Select a style for the currently selected font. Some options may not work, depending on what styles are installed for the current font.
- **Font Size:** Adjust the size of the font.
- **Word-wrap Width:** Set the width at which text will be wrapped to a new line, as a percentage of the total frame width.
- **Line Spacing:** Adjusts the distance between lines, when text is wrapped to a new line. This setting

has no effect if the text fits on a single line.

Animation

- **Duration:** Sets the overall duration of the Teaser element, in seconds.
- **Fade In:** At the start of the effect, the Teaser fades in. Use this control to adjust the timing of the fade in, as a percentage of the total duration.
- **Fade Out:** At the end of the teaser duration, the Teaser fades out. Use this control to adjust the timing of the fade out, as a percentage of the total duration.
- **End Time Gap:** Set the gap between the Teaser and the Movie Title. This gap occurs after the Duration set above.

Movie Title



Use these controls to adjust the appearance and timing of the Movie Title element.

- **Use:** Choose whether the Movie Title element will use text or a layer.
 - **Text:** When this option is selected, the Movie Title property above will be used to define the contents for this element.
 - **Layer:** When this option is selected, you can choose any other layer on the timeline to use its contents as the Movie Title element.

Appearance:

- **Color:** Select a color for the Movie Title element. You can use the eyedropper to choose a color from the layer, or click the swatch to open a color picker and choose any color you prefer. You can also manually enter the color values for the red, green, and blue channels.
- **Font:** Choose a font for the Movie Title element. All fonts currently installed on your system, will be available in this menu.
- **Style:** Select a style for the currently selected font. Some options may not work, depending on what styles are installed for the current font.
- **Font Size:** Adjust the size of the font.
- **Line Spacing:** Adjusts the distance between lines, when text is wrapped to a new line. This setting

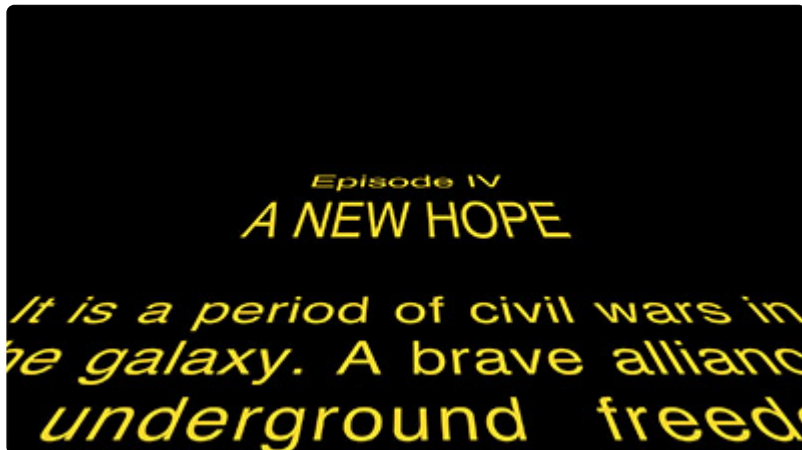
has no effect if the text fits on a single line.

- **Outline:** Creates an outline of the text, which allows you to use fonts that are not an outline already. When this property is set to 0.0%, the original font will be displayed. When the value is increased, the font is filled with black, and an outline is created using the color chosen above.

Animation

- **Duration:** Sets the overall duration of the Movie Title element, in seconds.
- **Start Distance:** Adjusts the distance from the camera to the Movie Title element when it first appears. Lower values make it appear closer to the camera.
- **End Distance:** Adjusts the distance from the camera to the Movie Title element when it disappears. Lower values make it appear closer to the camera.
- **Fade Out:** As the Movie Title recedes into the distance, it fades out at the end of its duration. Use this control to adjust the timing of the fade out, as a percentage of the total duration.
- **Text Crawl Overlap:** Adjust the overlap between the Movie Title and the Text Crawl elements. Higher values increase the amount of time for which both elements are visible simultaneously.

Text Crawl



Use these controls to adjust the appearance and timing of the Text Crawl elements. There are three elements which combine to make the crawl: the **Episode Number**, the **Episode Title**, and the **Story**. The Appearance controls affect all three elements, to retain consistent styling among them. Additional controls are available for each element, to customize its appearance further.

Appearance:

- **Color:** Select a color for the Teaser element. You can use the eyedropper to choose a color from the layer, or click the swatch to open a color picker and choose any color you prefer. You can also manually enter the color values for the red, green, and blue channels.
- **Font:** Choose a font for the Teaser element. All fonts currently installed on your system, will be available in this menu.
- **Style:** Select a style for the currently selected font. Some options may not work, depending on what styles are installed for the current font.

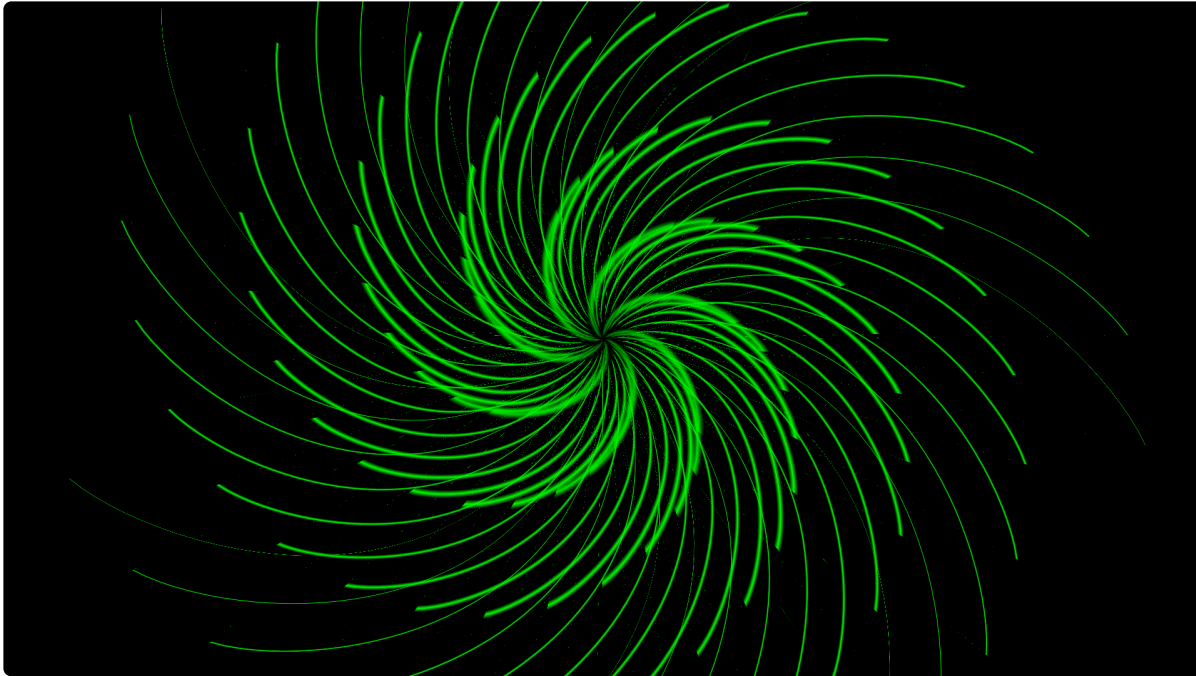
- **Font Size:** Adjust the size of the font.
- **Angle:** Adjusts the angle at which the text appears to recede from the camera.
- **Word-wrap Width:** Set the width at which text will be wrapped to a new line, as a percentage of the total frame width.
- **Episode Number:** Fine tune the layout of the Episode Number element.
 - **Stretch:** Changes the height of the Episode Number element, without altering its width. Values above 100% increase the height.
 - **Line Spacing:** Changes the size of the gap between the Episode Number and the Episode Title below it.
- **Episode Title:** Fine tune the layout of the Episode Title element.
 - **Font Scale:** Adjusts the size of the Episode Title text.
 - **Stretch:** Changes the height of the Episode Title element, without altering its width. Values above 100% increase the height.
 - **Line Spacing:** Changes the size of the gap between the Episode Title and the Story below it.
- **Story:** Fine tune the layout of the Story element which makes up the bulk of the Text Crawl.
 - **Stretch:** Changes the height of the Story element, without altering its width. Values above 100% increase the height.
 - **Line Spacing:** Changes the size of the gap between lines of text within the Story element.
 - **Paragraph Spacing:** Defines the amount of space created between paragraphs, when there is a line break in the text.
 - **Character/Word Justification:** Controls whether justification is applied to individual characters, to words, or to both. At 0.0%, each character is repositioned to justify each line. At 100.0%, the spacing within each word remains unchanged, and entire words are repositioned to create the justification.
 - **Justify Last Story Line:** When enabled, the final line of the story will be justified to fill the word-wrap width. When disabled, the final line will not be justified, but will display as a partial line.

Animation

- **Speed:** Sets the rate at which the Text Crawl scrolls past the camera. The speed selected here and the duration of the layer to which the Pulp Sci-fi Title Crawl is applied can both be adjusted to ensure the entire effect is visible.
- **Fade Start:** Select the point in the total duration of the Text Crawl at which it will start to fade out.
- **Fade End:** Select the point in the total duration of the Text Crawl at which its fade out will be completed.

2.7.29. Radio Waves

Creates geometric shapes that can be warped and animated. The shape of the waves can be heavily customized.



* If the playhead is on the first frame of the layer, then the Radio Waves effect will not yet be visible when it is applied to the layer. Scrub the playhead forward to see the emitted waves.

- **Preset:** A variety of shapes are available in this menu.

Position

- **Center:** Sets the point from which the waves will originate, using X (horizontal) and Y (vertical) values.
- **Use Layer:** Select another layer from the timeline using this menu, to use the selected layer's position to control the center of the Waves effect. When a layer is selected, the Position property above functions as an offset from the parent layer's position.

Shape

- **Shape:** Select the basic geometric shape of the waves. Round waves can be created using the Circle option, or choose any polygonal shape with from 3 to 10 faces.
- **Rotation:** Rotates polygonal wave shapes around the Center point.
- **Curvature:** When a polygon shape is selected, this property curves each face, while the angles where the faces meet remain in place.

- **Pinch:** Shifts the weight of the curvature toward the corners, so higher values create a flat area in the center of each face.
- **Shift:** Moves each face of the polygonal shape sideways, or perpendicular to their direction of travel. Any portion of the wave which is shifted beyond its corner will be cropped.

Appearance

- **Color:** Choose a color for the waves. You can use the eyedropper to choose a color from the layer, or click the swatch to open a color picker and choose any color you prefer. You can also manually enter the color values for the red, green, and blue channels.
- **Opacity:** Defines how opaque the waves are. At 0.00 the waves will be completely transparent, and at 1.00 they will be completely opaque.
- **Wave Start:** Sets the time, measured from the start of the layer, at which waves will begin to be emitted.
- **Fade In:** Sets the point in the total duration of each wave, at which its fade in ends, defined as a percentage of the total duration of the wave. Setting this value to 0% removes the fade in.
- **Fade Out:** Sets the point in the total duration of each wave, at which its fade out begins, defined as a percentage of the total duration of the wave. Setting this value to 100% removes the fade out.
- **Wave End:** Defines the duration, in seconds of each individual wave.
- **Start Width:** The line width of each wave, in pixels, at the point when it is emitted.
- **End Width:** The line width of each wave, in pixels, at the point when its duration ends.
- **Line Blend:** Select the blend mode used to combine the lines in any areas where they overlap. In many cases, the lines will not overlap, in which case this setting can be ignored.

Motion

- **Frequency:** Sets the amount of time, in seconds, between one wave and the next.
- **Expansion:** The speed at which the wave expands outward from the center point.
- **Spin:** Rotates the center point by the angle you specify, per second. The result is that the angles of each wave are offset from the preceding and subsequent waves.
- **Blend:** Choose the blend mode used to blend the Radio Waves effect onto the contents of the layer to which it is applied.

2.7.30. Reflection

A quick and easy way to create a reflection of the layer.



- **Preset:** Chose one of a variety of preconfigured reflection layouts.
- **Center:** Use these controls to define the location of the reflection, in relation to the source layer.
 - **Position:** Sets the point which marks the edge of the reflection, using X (horizontal) and Y (vertical) values. The boundary separating the original image and the reflected image will travel through this point, at the angle selected below.
 - **Use Layer:** Select another layer from the timeline using this menu, to use the selected layer's position as the position of the Reflection effect. When a layer is selected, the Position property above functions as an offset from the parent layer's position.
- **Angle:** Select the angle at which the original image and the reflection will be divided. If you imaging the reflection as a mirror, one edge of which is placed against your image, this is the angle of the mirror's edge.

2.7.31. Sphere

Creates a sphere that reflects its surroundings.



The sphere can be heavily customized with separate layers for the optional surface texture and environment map.

- **Preset:** Choose from one of the preconfigured options in this menu to automatically apply its settings to the effect.
- **Radius:** Sets the radius of the sphere, in pixels.
- **Use Source As:** Choose how the contents of the layer to which the sphere effect is applied will be used within the effect.
 - **Surface Texture:** Wraps the source layer onto the sphere, as the sphere's main texture. When this option is selected, the Layer property in the Surface Texture controls will not be displayed.
 - **Environment Map:** Reflects the source layer onto the surface of the sphere, as an environment map. When this option is selected, the Layer property in the Environment Map controls will not be displayed.
 - **Environment Layer:** The source layer is distorted and wrapped behind the sphere, as if it were being viewed through a sphere of glass. When this option is selected, the Environment Layer controls will not be displayed.
 - **None:** The source layer's contents are ignored.

Position

- **Transform From:** Select another layer from the timeline using this menu, to use the selected layer's

position to control the center of the Sphere. When a layer is selected, the Position property below functions as an offset from the parent layer's position.

- **Position:** Sets the center point of the sphere, using X (horizontal) and Y (vertical) values.
- **Depth:** Adjusts the apparent distance of the sphere from the camera, without moving the environment map or environment layer.

Scale

- **X:** Adjusts the horizontal diameter of the sphere independently from the Y axis and Z axis.
- **Y:** Adjusts the vertical diameter of the sphere independently from the X axis and Z axis.
- **Z:** Adjusts the front to back diameter of the sphere independently from the X axis and Y axis.

Surface Texture

The Surface Texture is the image used as the surface of the sphere itself, not factoring in any reflections or refractions.

- **Layer:** Choose any layer on the timeline to be used as the surface texture.
- **Scale:** Adjusts the size of the texture image applied to the sphere.
- **Scale Ratio:** Adjusts the width of the image independently from the height. A Scale Ratio of 1.00 uses the original aspect ratio of the source image.
- **Wrap X:** Select how the image will be wrapped from left to right, when necessary. Generally this setting is only relevant when the Scale (above) is set below 100%.
 - **No:** If the image is too small to fill the sphere, the areas beyond the image are filled with black.
 - **Tile:** An exact copy of the layer is used to fill the blank areas to the left and right of the original.
 - **Reflect:** A mirrored copy of the layer is used to fill the blank areas to the left and right of the original.
- **Wrap Y:** Select how the image will be wrapped from top to bottom, when necessary. Generally this setting is only relevant when the Scale (above) is set below 100%.
 - **No:** If the image is too small to fill the sphere, the areas beyond the image are filled with black.
 - **Tile:** An exact copy of the layer is used to fill the blank areas above and below the original.
 - **Reflect:** A mirrored copy of the layer is used to fill the blank areas above and below the original.

Environment Map

The Environment Map is the image used as the surrounding of your sphere, which is reflected onto its surface. The selected image is mapped onto an invisible virtual sphere, which surrounds the actual Sphere created by the effect. This allows the environment map to be realistically reflected onto the sphere from all sides. The Reflection controls below adjust how reflective the sphere's surface is, and thus how visible the environment map is.

- **Layer:** Choose any layer on the timeline to be used as the environment map.
- **Scale:** Adjusts the size of the environment map image that is reflected onto the sphere.

- **Scale Ratio:** Adjusts the width of the image independently from the height. A Scale Ratio of 1.00 uses the original aspect ratio of the source image.
- **Wrap X:** Select how the image will be wrapped from left to right, when necessary. Generally this setting is only relevant when the Scale (above) is set below 100%.
 - **No:** If the image is too small to fill the sphere, the areas beyond the image are filled with black.
 - **Tile:** An exact copy of the layer is used to fill the blank areas to the left and right of the original.
 - **Reflect:** A mirrored copy of the layer is used to fill the blank areas to the left and right of the original.
- **Wrap Y:** Select how the image will be wrapped from top to bottom, when necessary. Generally this setting is only relevant when the Scale (above) is set below 100%.
 - **No:** If the image is too small to fill the sphere, the areas beyond the image are filled with black.
 - **Tile:** An exact copy of the layer is used to fill the blank areas above and below the original.
 - **Reflect:** A mirrored copy of the layer is used to fill the blank areas above and below the original.

Environment Layer

The Environment Layer is the image used as a background, refracted through the sphere. The Refraction controls below define how transparent and refractive the sphere material is.

- **Layer:** Choose any layer on the timeline to be used as the Environment Layer.

Reflection

The reflection controls define how reflective the surface of the sphere is. This, in turn, affects how the environment map is reflected onto the sphere's surface.

- **Amount:** Adjusts how reflective the surface is.
- **Angle Dependency:** Modifies the shininess of the surface. Higher values create more glare on the surface, which washes out the contrast of the reflections.
- **Reflection Region:** Choose where on the sphere's surface the reflections will appear.
 - **All:** The entire surface of the sphere will reflect the environment map.
 - **Textured Area:** Only areas where a Surface Texture is present will be reflective.
 - **Untextured Area:** Only areas where no surface texture is present will be reflective.
 - **Text Mult Color:** Only areas where a Surface Texture is present will be reflective, but it also multiplies the color of the texture. So for example, a black texture will not reflect light, or a red texture will only reflect red light.

Refraction

Refraction controls how light passes through the volume of the sphere. In practical terms, it controls how the Environment Layer image which can be selected above, appears through the sphere. The Refractive Index property can be used to accurately simulate refraction from real world materials.

- **Refractive Index:** Select the refractive index of the sphere. [A list of common refractive indices can be found on Wikipedia.](#)

Illumination

- **Type:** Choose the lights that will be used to illuminate the sphere.
 - **None:** Any lights present on the timeline are ignored, and the default illumination model is used.
 - **Comp Lights:** All lights present on the timeline are used to illuminate the sphere.
 - **Selected Lights:** Only the specific lights you select will be used to illuminate the sphere.

2.7.32. Split Screen Masking

Provides a quick way to set up various split screen layouts. Numerous screen layout presets are included which can then be further customized.



- **Preset:** More than 25 split screen layouts are provided as presets. Choose any preset from this menu to apply it to your timeline as a starting point, and you can then link your images or videos to each region of the split screen.

Cuts

Cuts are the lines which split your screen into separate regions or images.

- **Cut Type:** Select how the frame will be divided
 - **Local:** The cut divides the entire frame, passing through the Position point in a straight line.
 - **Radial:** The Position Point is used as a hub, and all cuts radiate outward from that point.
- **Number of Cuts:** Defines how many cuts are present in the frame. Each cut will have its own controls below to fine tune its exact position.
- **View Cut Regions:** Enabling this option adjusts the brightness of each region, based on the order they are created in, to make it easier to see each region separately.

- **Cut #:** A numeric listing will be added for each Cut contained in the effect. For example, if **Number of Cuts** is set to 3, then there will be three sets of Cut controls, for controlling the positioning of each cut.
 - **Position:** Sets the origin point of the cut. The cut will pass through this line at the angle selected in the Direction property below. If the Cut Type is set to Radial, this property is not displayed.
 - **Direction:** Select an angle at which the cut will pass through the Position point.

Input Layers/Frames

Here is where you select the specific layer or media which will be displayed within each region created by the split screen. A separate set of Input controls will be listed for each region created by the effect, so the total number of inputs will be one greater than the number of cuts.

- **Layer:** Choose any timeline layer to display its contents within the region.
- **Frame Shift:** You can adjust the timing of the source layer. At 0, the source frame shown matches the timecode of the split screen layer. Negative values pull the source frame from earlier on the timeline, by the number of frames you choose. Positive values pull the source from later on the timeline, by the number of frames you choose.
- **Translate:** Shifts the position of the source layer within the region, on the X axis (horizontal) and Y axis (vertical).
- **Scale:** Adjusts the size of the source image within the region, to control what area of the source is visible.
- **Rotation:** Spins the source image within the region.

Border

These controls alter the appearance of the lines which divide one region from another.

- **Width:** Sets the width of the dividing line, in pixels. Set this value to 0.0 to remove the dividing lines entirely.
- **Color:** Choose a color for the borders. You can use the eyedropper to choose a color from the layer, or click the swatch to open a color picker and choose any color you prefer. You can also manually enter the color values for the red, green, and blue channels.
- **Alpha:** Defines how opaque the dividing lines are. At 0.00 the waves will be completely transparent, and at 1.00 they will be completely opaque.

2.7.33. Tile

A quick and easy way to tile the layer without needing to create duplicates. The effect duplicates the source as many times as necessary in order to fill the frame. The Scale property controls how many duplicate tiles are visible.



- **Preset:** Choose from several predefined tile layouts.
- **Scale:** Changes the size of each tile, thereby controlling how many tiles are visible within the frame.
- **Center:** Controls for the positioning of the tiles.
 - **Position:** Sets the center point for the tile effect, using X (horizontal) and Y (vertical) values.
 - **Use Layer:** Select another layer from the timeline using this menu, to use the selected layer's position to control the center of the Tiles effect. When a layer is selected, the Position property above functions as an offset from the parent layer's position.
- **Blend:** Adjusts the balance of the source image and the tiles. At 0.0% only the tiles are visible. At 100.0% only the source is visible.

2.7.34. Timecode

Generates a counter showing the current position in time of the layer or timeline.



- **Time From:** Choose the source of the timecode that is displayed.
 - **Layer:** The timecode starts from 0 at the first frame of the layer to which the effect is applied.
 - **Timeline:** The timecode starts from 0 at the first frame of the entire timeline, regardless of where on the timeline the layer itself starts.
- **Format:** Choose the format in which the timer counts. The example images show the timecode for the exact same frame, in each format.
 - **Frames:** Displays as a simple frame count, showing exactly how many frames exist in the range from the start of the source to the current playhead position.
3506
 - **SMPTE:** Uses the format established for film by the Society of Motion Picture and Television Engineers, which displays Hours : Minutes : Seconds : Frames
00:02:20:06
 - **Milliseconds:** Counts in common time format, displaying displays Hours : Minutes : Seconds : Milliseconds.
00:02:20:240
- **Center:** Use these controls to adjust the positioning of the timecode.
 - **Position:** Sets the center point for the timecode effect, using X (horizontal) and Y (vertical) values.
 - **Use Layer:** Select another layer from the timeline using this menu, to use the selected layer's position to control the center of the timecode effect. When a layer is selected, the Position property above functions as an offset from the parent layer's position.
- **Scale:** Adjusts the size of the timecode.

- **Text:** Modify the appearance of the numbers using these controls.
 - **Color:** Choose a color for the numbers. You can use the eyedropper to choose a color from the layer, or click the swatch to open a color picker and choose any color you prefer. You can also manually enter the color values for the red, green, and blue channels.
 - **Opacity:** Defines how opaque the numbers are. At 0.00 the numbers will be completely transparent, and at 1.00 they will be completely opaque.
- **Background:** Modify the appearance of the box which sits beneath the numbers, using these controls.
 - **Color:** Choose a color for the background. You can use the eyedropper to choose a color from the layer, or click the swatch to open a color picker and choose any color you prefer. You can also manually enter the color values for the red, green, and blue channels.
 - **Opacity:** Defines how opaque the background is. At 0.00 the background will be completely transparent, and at 1.00 they will be completely opaque.

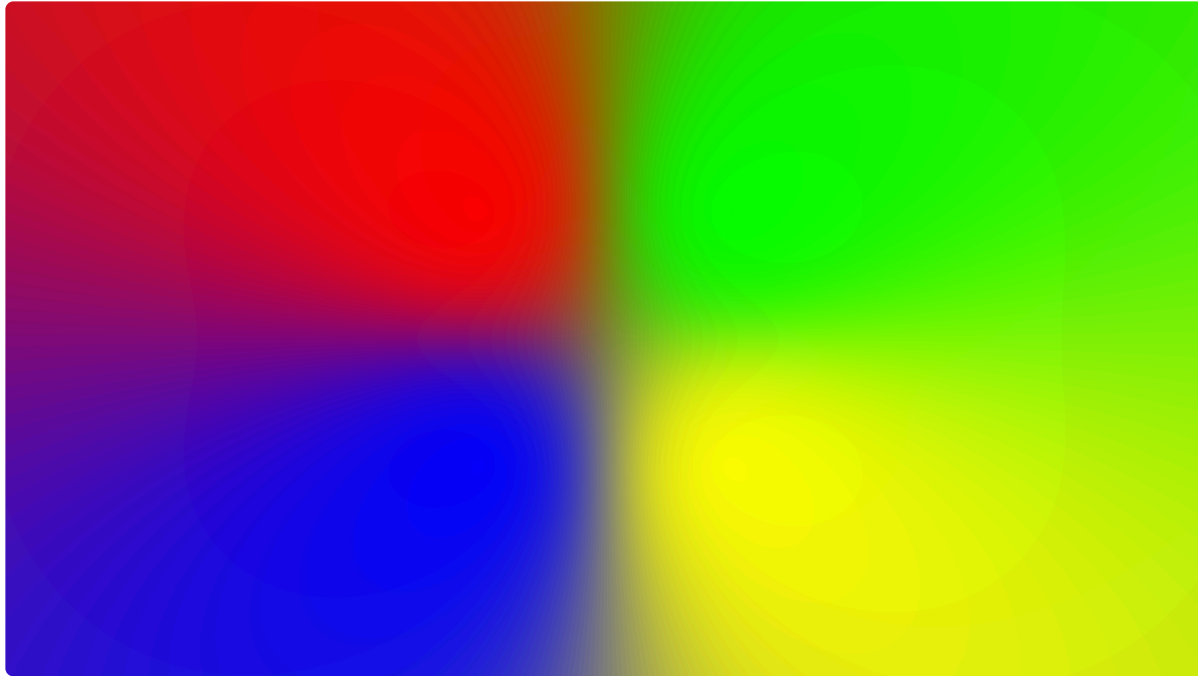
2.8. Gradients & Fills

A range of gradients and fills are provided. These can be extremely useful when used in conjunction with other effects, such as color map or shatter. Each effect has its own page, where details of the effect and its controls can be found.

- [4-Point Color Gradient](#)
- [Color Gradient](#)
- [Radial Gradient](#)

2.8.1. 4-Point Color Gradient

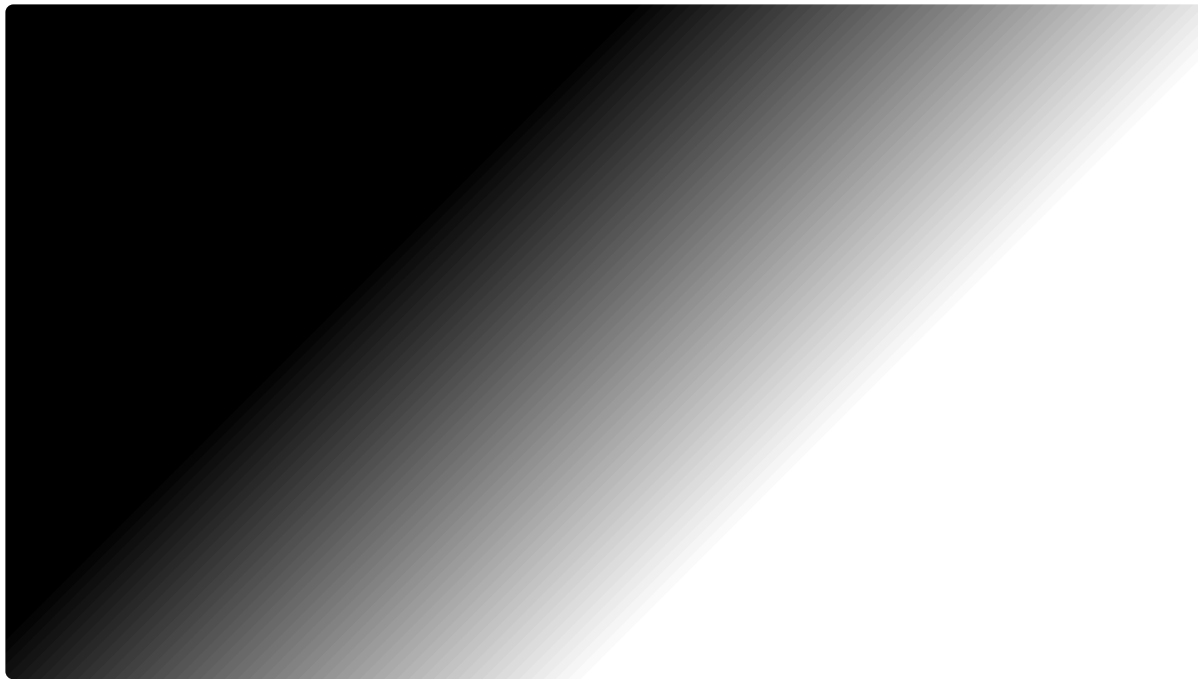
Generates a 4-color gradient. The colors and mixing of the colors can be changed, as can the position of the gradient points.



- **Preset:** Several predefined configurations are provided in this menu for your use.
- **Point 1 (four numbered copies of these controls are present, for the four control points)**
 - **Position:** Sets the location for the selected point, using X (horizontal) and Y (vertical) values.
 - **Use Layer:** Select another layer from the timeline using this menu, to use the selected layer's position to control the position of the selected gradient point. When a layer is selected, the Position property above functions as an offset from the parent layer's position.
 - **Color:** Choose a color for the selected point. You can use the eyedropper to choose a color from the layer, or click the swatch to open a color picker and choose any color you prefer. You can also manually enter the color values for the red, green, and blue channels.
- **Color Blend:** Adjusts the area affected by each color point. at 1.0, all four colors are blended across the entire frame, resulting in the frame being colored with an average of all four color values. At 25.0, each color extends from its center point, half of the distance to the nearest point in any direction.
- **Ramp Scatter:** Adds subtle noise into the gradient areas between colors, which can help to improve naturalness.
- **Opacity:** Changes the overall visibility of the gradient effect. 0.0% is completely transparent, and 100.0% is completely opaque.
- **Blend:** Select the blend mode used to combine the gradient with the contents of the layer to which it is applied.

2.8.2. Color Gradient

Creates a 2-point linear or radial gradient of color.



- **Preset:** Several predefined configurations are provided in this menu for your use.
- **Start Point:** Use these controls to define the location of the start point of the gradient.
 - **Position:** Sets the location for the start point, using X (horizontal) and Y (vertical) values.
 - **Use Layer:** Select another layer from the timeline using this menu, to use the selected layer's position to control the position of the start point. When a layer is selected, the Position property above functions as an offset from the parent layer's position.
- **End Point:** Use these controls to define the location of the end point of the gradient.
 - **Position:** Sets the location for the end point, using X (horizontal) and Y (vertical) values.
 - **Use Layer:** Select another layer from the timeline using this menu, to use the selected layer's position to control the position of the end point. When a layer is selected, the Position property above functions as an offset from the parent layer's position.
- **Start Color:** Choose a start color for the gradient. You can use the eyedropper to choose a color from the layer, or click the swatch to open a color picker and choose any color you prefer. You can also manually enter the color values for the red, green, and blue channels.
- **End Color:** Choose an end color for the gradient. You can use the eyedropper to choose a color from the layer, or click the swatch to open a color picker and choose any color you prefer. You can also manually enter the color values for the red, green, and blue channels.
- **Radial:** Enable this option to switch from a linear gradient to a radial gradient.
- **Ramp Scatter:** Adds subtle noise into the gradient areas between colors, which can help to improve naturalness.
- **Opacity:** Changes the overall visibility of the gradient effect. 0.0% is completely transparent, and 100.0% is completely opaque.

- **Blend:** Select the blend mode used to combine the gradient with the contents of the layer to which it is applied.

2.8.3. Radial Gradient

Creates a circular color gradient. The size, position and shape of the gradient can all be tweaked.



- **Preset:** Several predefined configurations are provided in this menu for your use.
- **Center:** Use these controls to define the center point of the gradient.
 - **Position:** Sets the location for the center point, using X (horizontal) and Y (vertical) values.
 - **Use Layer:** Select another layer from the timeline using this menu, to use the selected layer's position to control the position of the center point. When a layer is selected, the Position property above functions as an offset from the parent layer's position.
- **Inner Radius:** Controls for the inner radius of the effect
 - **Radius:** Sets the distance, in pixels, to which the core color of the gradient will extend before it begins transitioning to another color.
 - **Color:** Choose a color for the core of the gradient. You can use the eyedropper to choose a color from the layer, or click the swatch to open a color picker and choose any color you prefer. You can also manually enter the color values for the red, green, and blue channels.
 - **Opacity:** Changes the overall visibility of the gradient's core. 0.0% is completely transparent, and 100.0% is completely opaque.
- **Outer Radius:** Controls for the outer radius of the effect
 - **Radius:** Sets the distance from the center point, in pixels, at which the gradient will complete its transition from one color to another.
 - **Color:** Choose a color for the outer edge of the gradient. You can use the eyedropper to choose a color from the layer, or click the swatch to open a color picker and choose any color you prefer. You can also manually enter the color values for the red, green, and blue channels.
 - **Opacity:** Changes the overall visibility of the gradient's outer edge. 0.0% is completely transparent, and 100.0% is completely opaque.

- **Smooth:** Modifies the transition of the gradient between the two radii. Higher values weight the transition more toward the center.
- **Gradient Scatter:** Adds subtle noise into the gradient area between colors, which can help to improve naturalness.
- **Elliptical Deformation:** Deforms the gradient from circular to elliptical in shape. Positive values create a horizontal ellipse, and negative values create a vertical ellipse.
- **Rotation:** Spins the axis of the gradient. Adjusting the rotation is only noticeable if **Elliptical Deformation** (above) is set to a value other than 0.00.
- **Blend:** Select the blend mode used to combine the gradient with the contents of the layer to which it is applied.

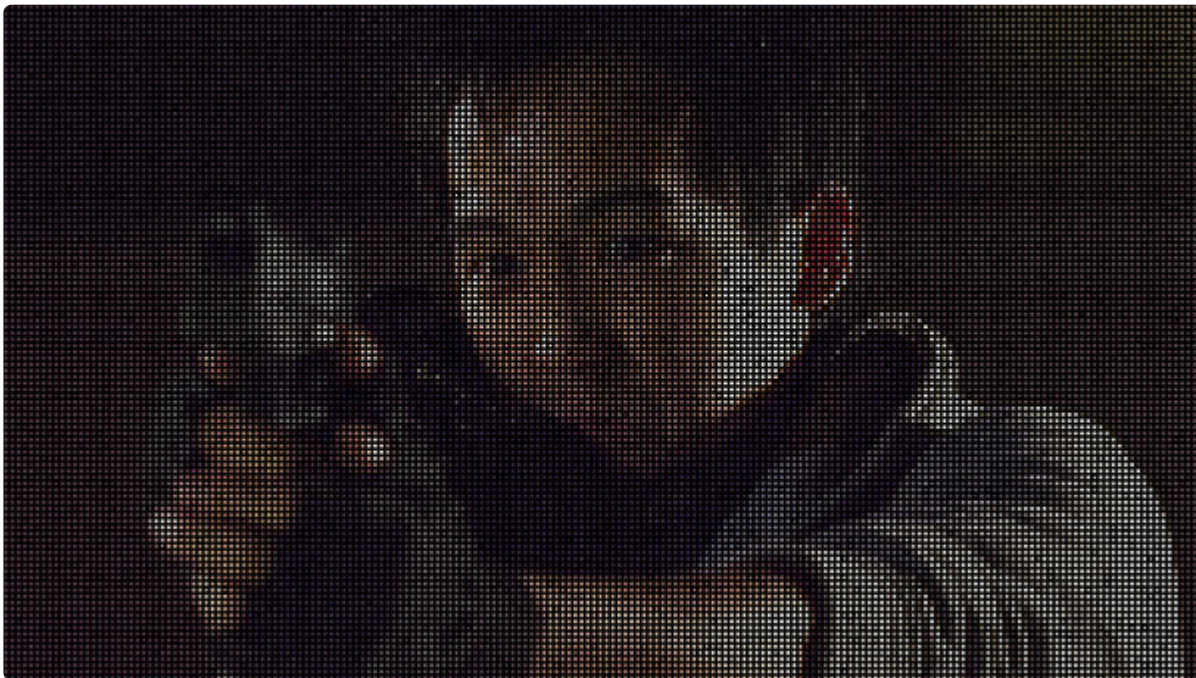
2.9. Grunge

The grunge effects are a set of effects for creating the appearance of old or damaged video. Each effect has its own page, where details of the effect and its controls can be found.

- [Dot Matrix](#)
- [Film Damage](#)
- [Film Grain](#)
- [Flicker](#)
- [Grain](#)
- [Half Tone](#)
- [Half Tone Color](#)
- [Jitter](#)
- [Lens Dirt](#)
- [Noise](#)
- [Pixel Sort](#)
- [Scan Lines](#)
- [Shake](#)
- [Stutter](#)
- [TV Damage](#)

2.9.1. Dot Matrix

Breaks the surface of our layer up into in a two dimensional patterned array of dots. The results are similar to a half-tone effect, but the dots are consistent in size, and are laid out in a fixed grid of horizontal and vertical lines.



- **Seed:** Randomizes the placement of the variations included in the dot matrix pattern. If the Variation controls are all set to 0, this property will have no effect.
- **Size:** Changes the size of each dot, and therefore the number of dots that are present within the frame.

- **Coverage:** Controls how much of the source image is visible within the dot matrix. This is achieved by controlling how the dots are affected by the variation properties. At 0% coverage, all dots will be given the lowest value within the range set for each variation property. At 100% coverage, all dots will be given the highest value within the range set for each variation property. So if you have Scale Shape set to 100% in the Variation controls, each dot has a range from 0% scale to 100% scale available. Keyframing the Coverage from 0 to 100% in that case will cause each dot to gradually increase in scale from 0 to 100%, but in a randomized pattern.
- **Gradient:** Adjusts the number of dots within the matrix which will be affected by Variation settings.

Position

- **Position:** Sets the location for the center of the dot matrix, using X (horizontal) and Y (vertical) values.
- **Use Layer:** Select another layer from the timeline using this menu, to use the selected layer's position as the center of the dot matrix. When a layer is selected, the Position property above functions as an offset from the parent layer's position.

Dot Appearance

- **Shape:** Select the shape of each dot within the matrix.
 - **Square:** Each dot uses a square or rectangular shape.
 - **Circle:** Each dot uses a circular or elliptical shape.
- **Size:** Adjusts the size of each dot, as a percentage of its available space within the matrix. At 100%, each dot will touch its neighboring dots on each side.
- **Gradient Type:** Select the type of gradient used to fill each dot.
 - **Radial:** The color of each dot is strongest in the center, and fades out radially toward the edges.
 - **Pyramid:** The color of each dot is strongest in an X pattern, and fades out between the arms of the X.
 - **Cross:** The color of each dot is strongest in a cross pattern, and fades out between the arms of the cross.
- **Gradient:** Controls how much gradient is present on each dot.
- **Gradient Alpha:** Modifies the transparency of the gradient on each dot. At 0.0, the color within each dot will fade to black. At 100%, the color within each dot will fade to transparent.
- **Aspect Ratio:** Stretches the shape of each dot horizontally.
- **Dot Texture:** Select the layer that will be used to map color onto the dots. **None** uses the contents of the layer to which the effect is applied.

Matte

- **Enable:** When enabled, this option allows you to matte the shape of the dot matrix pattern using a second layer.
- **Layer:** Choose any layer from the timeline to use its contents as a matte source.
- **Matte Channel:** Select the channel of the selected layer which will be used to create the matte.

Luminance is most commonly used. If you select a layer containing an alpha channel, then **Alpha** will allow you to apply that transparency data to the dot matrix.

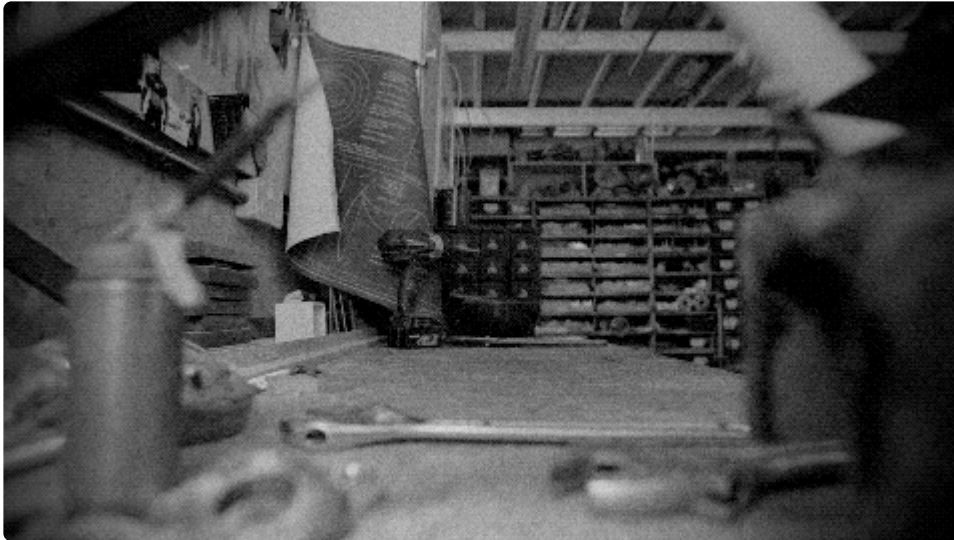
- **Variation Mix Mode:** Select how the matte is combined with the original contents of the dot matrix.
 - **Add:** Adds the selected matte, increasing the visible area.
 - **Mix:** Mixes the matte with the effect.
 - **Mult:** Multiplies the selected matte, reducing the visible effect outside of the matte area.

Variation

- **Noise:** Increasing noise randomly removes individual dots from the matrix. Changing the **Seed** above will alter which dots are removed.
- **Scale Shape:** Adjusts the range of size variations that will be used.
- **Scale Gradient:** Adjusts the range of gradient variations that will be used.
- **Scale Color:** Adjusts the range of color variations that will be used.
- **Scale Alpha:** Adjusts the range of alpha variations that will be used.
- **Distortion:** Warps the matrix, thereby modifying the shape of each dot.

2.9.2. Film Damage

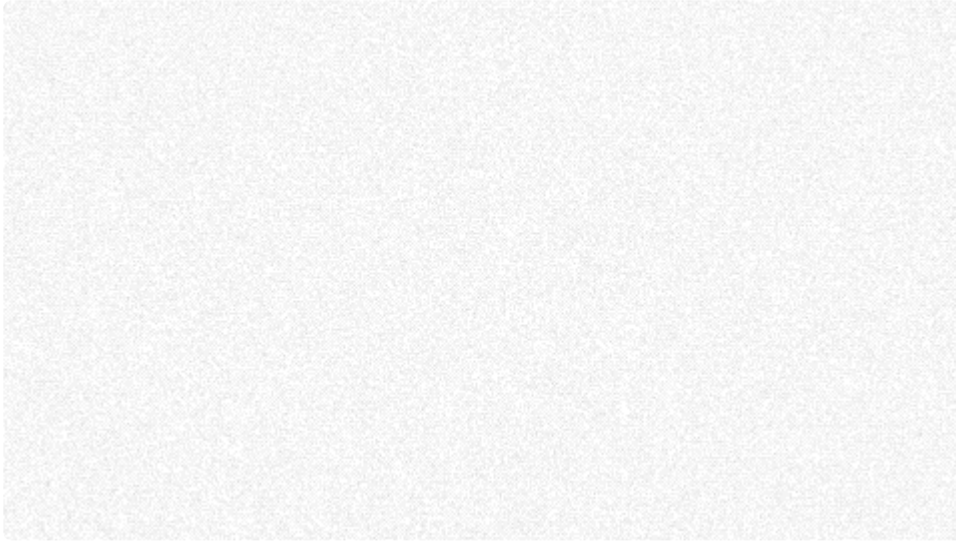
Simulates the flaws and problems seen in aged or poorly projected film stock, including grain, stains, dust and scratches, frame shake and flickering. You can control each of the elements individually to get the exact look you want.



- **Seed:** Randomizes the specific frames which are affected by the various elements of the Film Damage effect.

Grain

Grain is an inherent characteristic of traditional film. It is an optical texture of the film stock, created by tiny particles of silver halide on each frame of film being exposed to photons of light. It is similar to digital noise, but film grain tends to have a more organic appearance. The prominence of the grain will vary based on the film stock used, the exposure settings, and the physical size of the frame. In most cases, it should be applied subtly, so it doesn't draw attention to itself. Here we see the grain from our example clip, isolated onto a white background:



- **Enabled:** Toggles the grain component on or off.
- **Amount:** Sets the amount of grain present in the frame.
- **Size:** Adjusts the size of the individual grain particles.
- **Monochrome:** When enabled, this option makes all of the grain grayscale. When disabled, random colors are assigned to each particle of grain.

Stains

Stains are generated per frame. They replicate the flaws which may be present on old film that was poorly maintained, and allowed to be splattered with liquid, or dripped on. Here we see the stains from our example clip, isolated onto a white background:



- **Enabled:** Toggles the stains component on or off.
- **Quantity:** Sets the number of stains present per frame.
- **Quantity Variation:** Higher values increase the variation in the number of stains from one frame to the next.

- **Size:** Sets the average size, in pixels, of each stain.
- **Size Variation:** Higher values increase the variation in the size of each individual stain.
- **Opacity:** Defines how visible each stain is. Higher values make the stains more opaque, lower values make them more transparent.
- **Color:** Choose a color for the stains. You can use the eyedropper to choose a color from the layer, or click the swatch to open a color picker and choose any color you prefer. You can also manually enter the color values for the red, green, and blue channels.

Dust

This element replicates the appearance of dust on the projector lens, creating blurry, out of focus spots on the frame. At very low Size settings, it can also effectively serve to replicate dust on the film itself. Here we see the dust from our example clip, isolated onto a white background:



- **Enabled:** Toggles the dust component on or off.
- **Quantity:** Sets the amount of dust present per frame.
- **Quantity Variation:** Higher values increase the variation in the amount of dust from one frame to the next.
- **Size:** Sets the average size, in pixels, of each dust spot.
- **Size Variation:** Higher values increase the variation in the size of each individual dust spot.
- **Opacity:** Defines how visible each dust spot is. Higher values make the dust more opaque, lower values make it more transparent.
- **Color:** Choose a color for the dust. You can use the eyedropper to choose a color from the layer, or click the swatch to open a color picker and choose any color you prefer. You can also manually enter the color values for the red, green, and blue channels.

Scratches

Simulates the appearance of scratches on film that has not been well cared for, and has been abraded or scuffed. Here we see the scratches from our example clip, isolated onto a white background:

- **Enabled:** Toggles the scratches component on or off.
- **Quantity:** Sets the number of scratches present per frame.
- **Length:** Adjusts the length of the individual scratches.
- **Width:** Defines the width of the scratches.
- **Taper:** Tapers the ends of the scratches, so they fade out rather than stopping abruptly.
- **Color:** Choose a color for the scratches. You can use the eyedropper to choose a color from the layer, or click the swatch to open a color picker and choose any color you prefer. You can also manually enter the color values for the red, green, and blue channels.
- **Opacity:** Defines how visible the scratches are. Higher values make the scratches more opaque, lower values make them more transparent.

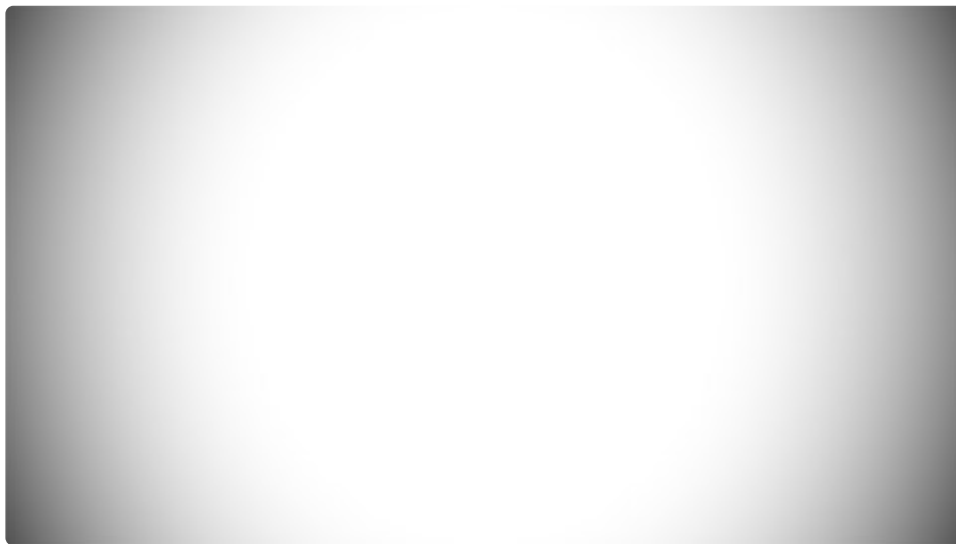
Shake

The Shake component simulates the behavior of film that is improperly registered in the projector, or which is slipping off the projector's drive sprockets and periodically getting out of alignment. Here we see the shake from our example clip, isolated onto a white background:

- **Enabled:** Toggles the shake component on or off.
- **Frequency:** Adjusts the frequency of frames being mis-aligned.
- **Amplitude:** Sets the range of how far off the alignment will be.
- **Regularity:** Changes how consistently the shake occurs.
- **Gap:** Adjusts the width of the space between one frame and the next, when the division between frames is visible.
- **Blur:** Adjust the amount of blur present on frames where the alignment is shifting.

Vignette

This component makes the edges of the frame darker than the center. Some projectors may create this effect, when the projector bulb doesn't illuminate the frame evenly. Here we see the vignette from our example clip, isolated onto a white background:



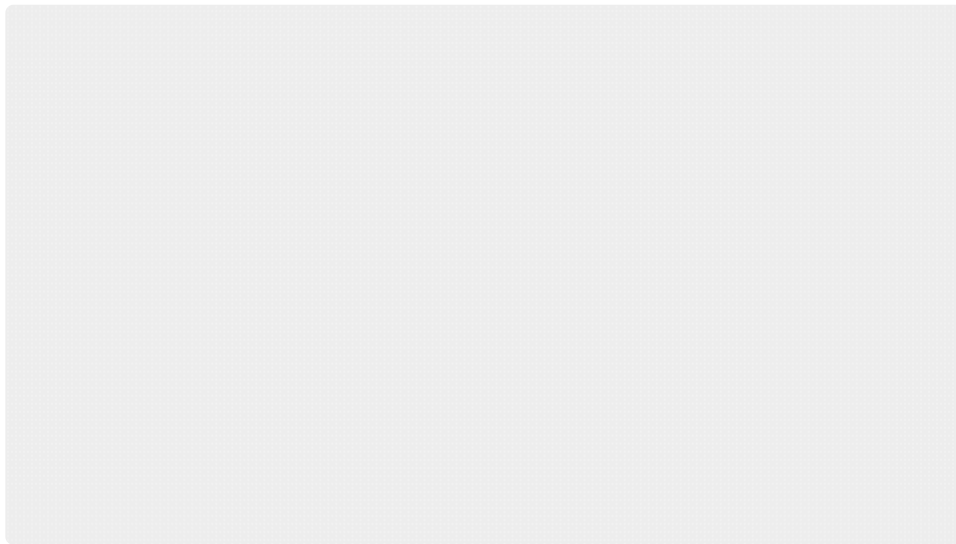
- **Enabled:** Toggles the vignette component on or off.
- **Center:** Controls the placement of the vignette.
 - **Position:** Sets the location for the center of the vignette, using X (horizontal) and Y (vertical) values.
 - **Use Layer:** Select another layer from the timeline using, to use the selected layer's position to control the position of the vignette. When a layer is selected, the Position property above functions as an offset from the parent layer's position.
- **Horizontal Stretch:** Adjusts the width of the vignette, relative to the width of the frame.
- **Vertical Stretch:** Adjusts the height of the vignette, relative to the height of the frame.
- **Softness:** Adjusts the transition from full brightness to darkened vignette, around the vignette's edges.
- **Curvature:** Shifts the weighting of the transition, between the center of frame and the edge of the vignette.
- **Opacity:** Adjusts the opacity of the layer to which the vignette is applied, for some reason.
- **Background:** These controls adjust the appearance of the vignette itself.
 - **Opacity:** Defines how visible the vignette is. Higher values make the vignette more opaque,

lower values make it more transparent.

- **Color:** Choose a color for the vignette. You can use the eyedropper to choose a color from the layer, or click the swatch to open a color picker and choose any color you prefer. You can also manually enter the color values for the red, green, and blue channels.

Flicker

The Flicker component varies the brightness of each frame, simulating the effects of a slightly mis-aligned or sloppy shutter in a film projector, which does not allow a consistent amount of light through the lens. Here we see the flicker from our example clip, isolated onto a white background:



- **Enabled:** Toggles the flicker component on or off.
- **Frequency:** Controls how often the frame flickers.
- **Amplitude:** Defines the range of brightness within which the adjustments will be applied.
- **Randomness:** Controls how regularly or randomly the flicker is applied.
- **Brightness:** Modifies the default brightness of the layer.
- **Red:** You can modify the flicker of each color channel individually. These controls affect the red channel.
 - **Amplitude:** Controls how far the red channel flickers toward the selected phase.
 - **Phase:** Choose the color phase toward which the red channel will be shifted.
- **Green:** You can modify the flicker of each color channel individually. These controls affect the green channel.
 - **Amplitude:** Controls how far the green channel flickers toward the selected phase.
 - **Phase:** Choose the color phase toward which the green channel will be shifted.
- **Blue:** You can modify the flicker of each color channel individually. These controls affect the blue channel.
 - **Amplitude:** Controls how far the blue channel flickers toward the selected phase.
 - **Phase:** Choose the color phase toward which the blue channel will be shifted.

Defocus

Defocuses the image subtly, on a per-frame basis, as if the filmstock has shifted slightly out of the focal plane while traveling through the projector. Here we see our example footage with only the defocus component applied:



- **Enabled:** Toggles the defocus component on or off.
- **Frequency:** Controls how often the focus is softened.
- **Amplitude:** Adjusts how much blur is applied when the defocus occurs
- **Randomness:** Modifies how much the range of blur varies, within the range set by the Amplitude property.

2.9.3. Film Grain

Generates a realistic grain based on 8mm, 16mm or 32mm film stock. The individual grains that make up Film Grain tend to be similar in size, but their apparent size changes based on the size of each from of the film being used. An 8mm frame will fit far fewer grains than a 35mm frame, and therefore the grain appears larger in the 8mm frame. This example shows 16mm film grain with no underlying image, so you can see exactly what the grain looks like:



- **Preset:** Choose from various presets for common film stocks.
- **Film Size:** Select the size of the film you wish to emulate.
 - **8mm:** 8mm film has the largest grain
 - **16mm:** 16mm film has a moderately sized grain
 - **35mm:** 35mm film has a finer grain.
- **Grain Strength:** Modifies the intensity of the grain. Higher values make the grain darker, and more obvious.
- **Seed:** Each seed number randomizes the position of the individual grains.
- **Monochrome:** When enabled, this option makes all of the grain grayscale. When disabled, random colors are assigned to each particle of grain.

2.9.4. Flicker

Introduces a random flickering to the layer. The behavior of the flicker can be finely customized.



- **Seed:** Each seed value randomizes the pattern of the flicker, altering which frames are affected and what values they are assigned, within the range specified by your settings below.
- **Frequency:** Controls how often the frame flickers.
- **Amplitude:** Defines the range of brightness within which the adjustments will be applied.
- **Randomness:** Controls how regularly or randomly the flicker is applied.
- **Brightness:** Modifies the default brightness of the layer.
- **Red:** You can modify the flicker of each color channel individually. These controls affect the red channel.
 - **Amplitude:** Controls how far the red channel flickers toward the selected phase.
 - **Phase:** Choose the color phase toward which the red channel will be shifted.
- **Green:** You can modify the flicker of each color channel individually. These controls affect the green channel.
 - **Amplitude:** Controls how far the green channel flickers toward the selected phase.
 - **Phase:** Choose the color phase toward which the green channel will be shifted.
- **Blue:** You can modify the flicker of each color channel individually. These controls affect the blue channel.
 - **Amplitude:** Controls how far the blue channel flickers toward the selected phase.
 - **Phase:** Choose the color phase toward which the blue channel will be shifted.

2.9.5. Grain

This effect provides fine control over the size of the grain.

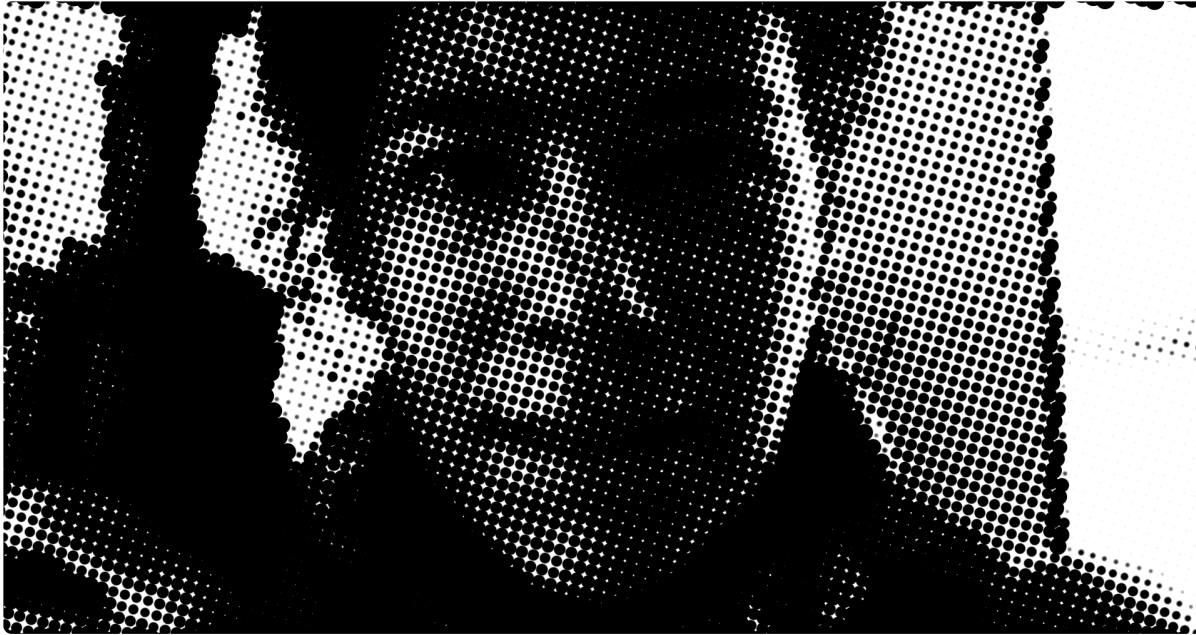


- **Amount:** Sets the amount of grain present in the frame.
- **Size:** Adjusts the size of the individual grain particles.
- **Monochrome:** When enabled, this option makes all of the grain grayscale. When disabled, random colors are assigned to each particle of grain.
- **Seed:** Each seed number randomizes the position of the individual grains.

2.9.6. Half Tone

Turns the layer into a half tone image, as used in traditional black and white newspaper print. Halftone uses a grid of dots to reproduce the image, varying the size or spacing of the dots to depict tonal changes.

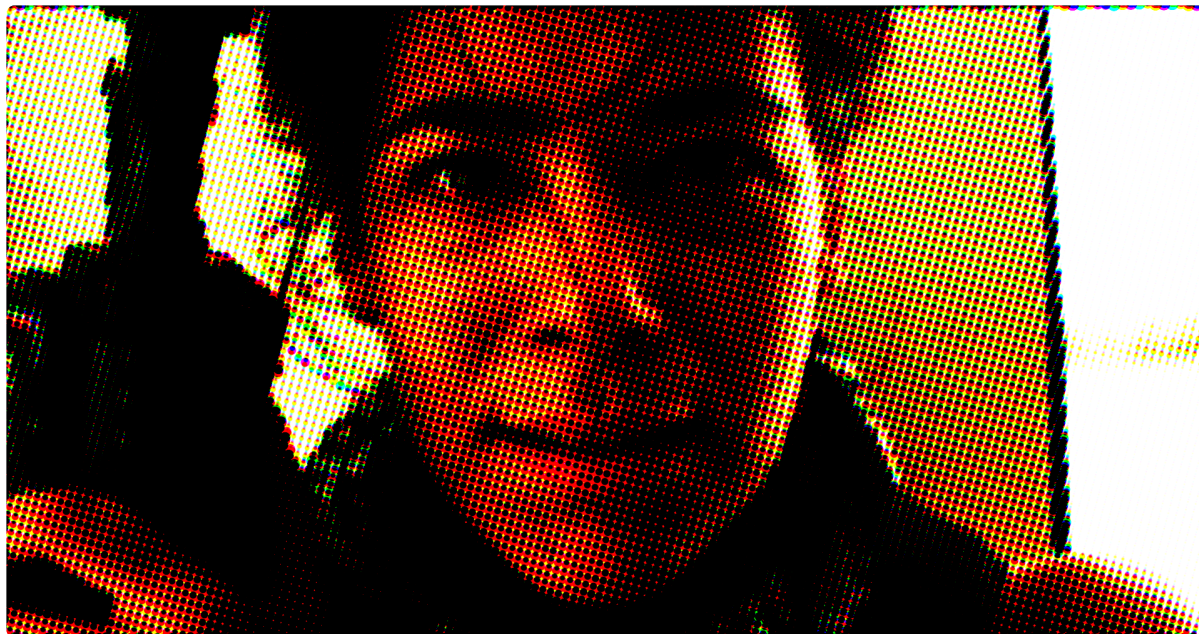
You can adjust the composition of the half tone dots.



- **Preset:** Choose from one of the built-in presets to immediately replicate a specific half tone look.
- **Resolution:** Defines the number of dots which will be used to represent the image, horizontally.
- **Angle:** Sets the angle of each vertical line of dots.
- **Dot Color:** Choose a color for the dots. You can use the eyedropper to choose a color from the layer, or click the swatch to open a color picker and choose any color you prefer. You can also manually enter the color values for the red, green, and blue channels.
- **Background Color:** Choose a color for the spaces between the dots. You can use the eyedropper to choose a color from the layer, or click the swatch to open a color picker and choose any color you prefer. You can also manually enter the color values for the red, green, and blue channels.
- **Shift X:** Shifts the grid of dots along the horizontal axis. Positive values move the dots right, negative values move them left.
- **Shift Y:** Shifts the grid of dots along the vertical axis. Positive values move the dots up, negative values move them down.
- **Offset:** Shifts the overall brightness of the entire image. Positive values brighten, negative values darken.
- **Smooth Source:** Applies a pre-blur of the layer before converting it to half-tone, thereby softening the details.

2.9.7. Half Tone Color

A color variation of the Half tone effect. Halftone uses a grid of dots to reproduce the image, varying the size or spacing of the dots to depict tonal changes. Color Half tone renders each color channel into a half tone grid, then blends them to create the color image.



- **Preset:** Choose from one of the built-in presets to immediately replicate a specific half tone look.
- **Type:** Select the color channels used to generate the half tone.
 - **RGB:** Uses the red, green, and blue channels which make up most digital images.
 - **CMY:** Uses the Cyan, Magenta, and Yellow channels used in printing, for a more accurate replication of printed imagery.
- **Resolution:** Defines the number of dots which will be used to represent the image, horizontally.
- **Angle:** Sets the angle of each vertical line of dots.
- **Offset:** Shifts the overall brightness of the entire image. Positive values brighten, negative values darken.
- **Smooth Source:** Applies a pre-blur of the layer before converting it to half-tone, thereby softening the details.
- **Red/Cyan:** Repositions the red or cyan channel, depending on the selected type. Individual color channels can be offset in this way to replicate the slight alignment errors common in old color half tone images.
 - **Shift X:** Shifts the red or cyan channel along the horizontal axis. Positive values move the dots right, negative values move them left.
 - **Shift Y:** Shifts the red or cyan channel along the vertical axis. Positive values move the dots up, negative values move them down.
- **Green/Magenta:** Repositions the green or magenta channel, depending on the selected type. Individual color channels can be offset in this way to replicate the slight alignment errors common in old color half tone images.

- **Shift X:** Shifts the green or magenta channel along the horizontal axis. Positive values move the dots right, negative values move them left.
- **Shift Y:** Shifts the green or magenta channel along the vertical axis. Positive values move the dots up, negative values move them down.
- **Blue/Yellow:** Repositions the blue or yellow channel, depending on the selected type. Individual color channels can be offset in this way to replicate the slight alignment errors common in old color half tone images.
 - **Shift X:** Shifts the blue or yellow channel along the horizontal axis. Positive values move the dots right, negative values move them left.
 - **Shift Y:** Shifts the blue or yellow channel along the vertical axis. Positive values move the dots up, negative values move them down.

2.9.8. Jitter

Creates glitches in video playback order, shuffling the order of frames. Compare the original shot here with the second shot, where jitter is applied:



The amount and frequency of the jitter can be extensively modified.

- **Frame Group Size:** Select how many frames are played in the correct sequence, before the jitter effect jumps to a new frame in the source file. This has the result of altering the speed of the jitter.
- **Jitter Amount:** Controls the maximum range of how far each jump in the jitter effect can extend, as a percentage of the entire layer length.
- **Seed:** Each value randomizes the pattern of skipping through the frames.

2.9.9. Lens Dirt

Simulates dirt on the camera lens and in-lens reflection. Subtle use of this effect can often be helpful in adding realism to CGI shots or elements, and making them feel less perfect or artificially precise.



The dirt element can be procedurally generated from various seed values, or you can use another layer as the dirt source. The in-lens reflection flaring can be generated from the applied layer or from another source.

- **Preset:** Choose any of the built-in presets for immediate results, or as a starting point for further adjustments.
- **Light Layer:** Choose the layer whose luminance will be used to illuminate the lens dirt. When **None** is selected, the contents of the layer to which the effect is applied will be used. Select any other layer on

the timeline to use its contents instead.

- **Dirt Layer:** Choose the layer whose contents will be used to generate the lens dirt. When **None** is selected, the dirt generated by the Lens Dirt effect will be used. Select any other layer on the timeline to use its contents instead.
- **Threshold:** Set the minimum luminance level at which the contents of the Dirt layer or dirt map will be visible. Higher values restrict the effect to brighter areas of the frame, thereby making the effect more subtle.
- **Intensity:** Adjusts the brightness of the dirt. Higher values make the effect more obvious.
- **Blur:** Blurs the light layer which illuminates the dirt, without altering the detail of the dirt itself. For realistic results this value should be kept relatively high.
- **Pivot Angle:** Modifies the angle at which the light layer enters the virtual lens. For realistic results this value should be kept relatively high.
- **Blend:** Choose the blend mode used to composite the effect onto the underlying layer.
- **Dirt Map:** When no Dirt Layer is selected, the Lens Dirt effect will generate its own dirt map.
 - **Seed:** Each seed value contains a unique procedurally generated dirt map. Change the seed if you want to use a different dirt map.

2.9.10. Noise

The basic noise effect provides a fixed-size noise.



- **Amount:** Sets the amount of noise present in the frame.
- **Monochrome:** When enabled, this option makes all of the noise grayscale. When disabled, random colors are assigned to each particle of noise.
- **Seed:** Each seed number randomizes the position of the individual noise particles.

2.9.11. Pixel Sort

Sorts lines of pixels based on color or tone, and creates a linear smearing effect. The Min Brightness and Max Brightness settings allow you to define a specific range of values to be included in the sorting. In each line of pixels, all pixels within the specified value range will be grouped, then sorted by value.



- **Sort Order From:** Choose the layer whose contents will be used to calculate the sort order. Select **None** to use the contents of the layer to which the Pixel Sort effect is applied. Choose any other layer on the timeline to calculate sort order based on its contents.
- **Sort Order Channel:** Select the channel of the chosen layer whose data will be used for sorting the pixels. This can dramatically affect the results. Sorting pixels based on saturation values will give much different results than sorting them by Luminance values, for example.
- **Grouping From:** Choose the layer whose contents will be used to calculate the pixel grouping. Select **None** to use the contents of the layer to which the Pixel Sort effect is applied. Choose any other layer on the timeline to calculate pixel grouping based on its contents.
- **Grouping Channel:** Select the channel of the chosen layer whose data will be used for generating the pixel groups. This can dramatically affect the results. Grouping pixels based on saturation values will give much different results than grouping them by Luminance values, for example.
- **Min Brightness:** Specify the lowest value that will be included in the sorting. Pixels with values below the specified brightness will remain unaffected.
- **Max Brightness:** Specify the highest value that will be included in the sorting. Pixels with values above the specified brightness will remain unaffected.
- **Edge Threshold:** Increasing the Edge Threshold value preserves edge details in the image, preventing the sorting from crossing the edges.
- **Direction:** Specify the angle of the sorting.
- **Sort Transparent:** Enable this option to include transparent pixels in the sorting. For layers with masks or alpha transparency, disabling this option keeps the sorted pixels within the limits of the matte. Enabling it allows the pixel sorting to extend beyond the matte borders.
- **Reveal Mode:** The Reveal controls can be keyframed to gradually apply the pixel sorting. Select the

mode used to reveal the effect.

- **Re-Order:** Linearly moves the pixels to their final sort locations.
- **Flow (Dark):** Pixels are sorted progressively, with the darkest pixels being sorted first, working through to lightest pixels last.
- **Flow Over (Dark):** Pixels are sorted progressively, from dark to light, and blended over the original image.
- **Flow (Bright):** Pixels are sorted progressively, with the brightest pixels being sorted first, working through to darkest pixels last.
- **Flow Over (Bright):** Pixels are sorted progressively, from light to dark, and blended over the original image.
- **Reveal:** Sets the percentage of the selected brightness range that is currently applied. 0% shows the original, unaffected image. 100% shows the fully pixel sorted image. The **Reveal Mode** setting above controls what method is used to reveal the pixels at all other values.
- **Reveal Noise:** Controls the granularity of the effect. Lower values smooth out the reveal, while higher values increase fine detail in the sorting results.

2.9.12. Scan Lines

Creates scan lines, as seen on some CRT displays when filmed.



- **Preset:** Choose any one of the built-in presets. The presets can be used as-is, or further customized to create the exact look you require.
- **Frequency:** Defines how many lines appear within the frame height.
- **Sharpness:** Adjusts how sharp the edges of each line are. Higher values soften the edges by blurring the scan lines.
- **Angle:** Sets the angle perpendicular to the scan lines.
- **Shift:** Adjusts the position of the scan lines, along the angle specified above. Negative values move the lines upward, positive values move the lines downward.
- **Channel Shift:** Each color channel can be shifted independently of the others.
 - **Red:** Adjusts the position of the red channel, along the angle specified above. Negative values move the channel upward, positive values move the channel downward.
 - **Green:** Adjusts the position of the green channel, along the angle specified above. Negative values move the channel upward, positive values move the channel downward.
 - **Blue:** Adjusts the position of the blue channel, along the angle specified above. Negative values move the channel upward, positive values move the channel downward.
- **Color:** Specify the two alternating colors used to create the scan lines. The effect is multiplied onto the underlying layer, so White becomes invisible, while Black remains completely visible.
 - **Color 1:** Choose a color. You can use the eyedropper to choose a color from the layer, or click the swatch to open a color picker and choose any color you prefer. You can also manually enter the color values for the red, green, and blue channels.
 - **Color 2:** Choose a color. You can use the eyedropper to choose a color from the layer, or click the swatch to open a color picker and choose any color you prefer. You can also manually enter the color values for the red, green, and blue channels.

- **Brightness:** Modifies the brightness of the underlying layer, beneath the scan lines. The darkest and brightest tonal values remain unchanged, while all values in between are shifted.
- **Offset:** Moves the entire tonal range of the underlying layer. Unlike the brightness control above, all tonal values get shifted equally.
- **Gamma:** Changes the gamma of the underlying layer.
- **Saturation:** Alters the intensity of the colors contained in the underlying layer, beneath the scan lines.
- **Smooth Source:** Blurs the contents of the underlying layer, beneath the scan lines.

2.9.13. Shake

Adds artificial camera shake to the layer. This can be useful for adding shake to explosive effects, or for adding a sense of a handheld camera to a tripod shot.



- **Amount:** Controls the maximum distance which the frame can be moved to create the shaking.
- **Speed:** Controls the maximum speed at which the frame can move to create the shaking.
- **Seed:** Each seed number randomizes the timing, speed, and direction of the shake, within the maximums defined above.
- **Smooth:** Applies a radius to any sharp angles in the shaking movement.
- **Scale:** Changes the size of the layer contents, to prevent edges from becoming visible when the frame moves.

Individual Controls

- **X Shake:** Shakes the frame left to right, moving it along the X (horizontal) axis.

- **Y Shake:** Shakes the frame up and down, moving it along the Y (vertical) axis. * **Tilt Shake:** Shakes the frame rotationally, randomly changing the angle.

Fractal

- **Levels:** Increasing the fractal levels adds smaller jitters on top of the larger shake movement.
- **Amount Scalar:** Alters the distance which the frame will be moved by the shake.
- **Speed Scalar:** Alters the speed at which the frame will be moved by the shake.
- **Temporal Shift:** Shifts the timing of the shake pattern. When more extreme shake is applied, this can help to ensure that critical components of the scene remain visible.

Motion Blur

- **Mode:** Choose how motion blur is calculated, for the motion of the shaking frame.
 - **Off:** No motion blur is applied.
 - **Comp Settings:** The motion blur settings defined in the timeline properties are used.
 - **Custom:** Allows you to define custom settings specifically for the shake effect. Selecting this option reveals two additional controls, Scale and Samples.
- **Scale:** Specifies the amount of blur to be applied.
- **Samples:** Defines how many duplicates of the frame should be used to fill in the blur distance. Higher values tend to look better, but are slower to process.

Wrap

- **X:** As the frame position is moved by the shake, the edges of the frame may become visible within each lens. This control determines how the blank space on the left or right side of the frame is handled.
 - **No:** The blank areas remain unaffected.
 - **Tile:** An exact copy of the layer is used to fill the blank area.
 - **Reflect:** A mirrored copy of the layer is used to fill the blank area.
- **Y:** As the frame position is moved by the shake, the edges of the frame may become visible within each lens. This control determines how the blank space on the top or bottom of the frame is handled.
 - **No:** The blank areas remain unaffected.
 - **Tile:** An exact copy of the layer is used to fill the blank area.
 - **Reflect:** A mirrored copy of the layer is used to fill the blank area.

2.9.14. Stutter

Reduces the number of frames used during playback of the layer, creating the impression of the video momentarily freezing.



- **Freeze Frames:** Specify the duration, in frames, for which each frozen image will be held.
- **Frame Start:** The freeze frames can be offset within the layer's duration. Choose the frame on which the stuttering results should begin.

2.9.15. TV Damage

TV Damage simulates the appearance of a badly tuned television signal. It combines multiple elements to create the final effect, and each element can be customized individually to create the exact look you want.



- **Seed:** Randomizes the specific frames which are affected by the various elements of the TV Damage effect.

Ghosting

Ghosting is a duplication of the image, with the duplicate(s) being offset from the original. The most common cause is a television signal reaching the antenna from several different paths, with slightly different timing, so multiple frames are displayed simultaneously. Here is the sample footage with only the ghosting component applied.



- **Enabled:** Toggles the ghosting component on or off.
- **Number of Ghosts:** Defines the number of duplicate images which will be generated.
- **Separation:** Sets the distance, in pixels, between each ghost, or duplicate.
- **Falloff:** Increasing the falloff moves the ghosts back to the correct position. At 0.00, the ghosts will be separated by the Separation value defined above. At 1.00, they will be perfectly aligned with the original. Keyframing this value allows you to naturally animate the appearance or disappearance of the ghosting component.

Co-Channel Interference

Co-Channel interference, also known as crosstalk, occurs when two channels are being received at the same time. It blends a second image onto your primary image. Here is the co-channel interference from the sample footage, isolated from the main footage:



- **Enabled:** Toggles the co-channel interference component on or off.
- **Source:** Choose another timeline layer to be the source of the interference.
- **Intensity:** Adjusts the balance between the primary image, and the interference image. 0.00 shows only the original image, and 1.00 shown only the interference image.

Offset

Use these controls to change the positioning of the interference image.

- **Position:** Sets the location for the center of the interference image, using X (horizontal) and Y (vertical) values.
- **Use Layer:** Select another layer from the timeline using, to use the selected layer's position to control the position of the interference image. When a layer is selected, the Position property above functions as an offset from the parent layer's position.

Movement

The movement controls apply automated animation to the position of the interference image.

- **X:** Set the distance, in pixels, which the interference image will move horizontally per second.
- **Y:** Set the distance, in pixels, which the interference image will move vertically per second.

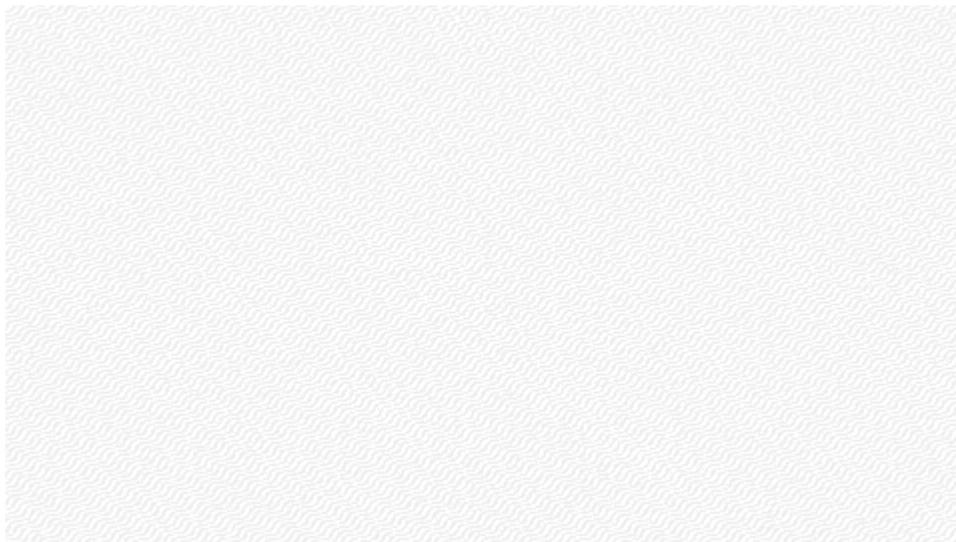
Gap

controls the size of the gap between duplicates of the interference image, when the Offset or Movement properties are set to values which reveal the edges of the image.

- **X:** Set the width, in pixels, of the gap between each horizontal copy of the interference image.
- **Y:** Set the height, in pixels, of the gap between each vertical copy of the interference image.

Radio Interference

This component simulates the negative impact on your image quality of a radio signal which is overlapping the frequency of the television signal. Generally the affect presents as squiggly lines which break up the image. Here is the radio interference component from our sample footage:



- **Enabled:** Toggles the radio interference component on or off.
- **Intensity:** Controls how visible the interference lines are.
- **Angle:** The angle selected here will be perpendicular to the squiggly lines.
- **Scale:** Adjust the overall size of the lines which make up the interference.
- **Frequency:** Sets the width of each wave, or squiggle. Higher values increase the number of squiggles in each line.
- **Amplitude:** Sets the height of each squiggle. Lower values result in relatively straight lines, while higher values increase the distortion of the lines.
- **Sharpness:** Adjusts how crisp the edges of each line are.

Motion

- **Angle:** Select the direction in which the radio interference lines will move.
- **Speed:** Set the speed, in pixels per second, at which the radio interference lines will move.

Vertical Hold

Analog television signals sometimes needed to be manually adjusted for accurate alignment. When vertical hold lost synchronization, the image would consistently or intermittently scroll upwards or downwards. Here is the sample footage with only the vertical hold component applied:



- **Enabled:** Toggles the vertical hold component on or off.
- **Frequency:** Adjusts how often the vertical hold is lost, causing the image to shift vertically.
- **Regularity:** Controls how consistently the vertical position of the image is shifted. Lower values give more random results.
- **Gap:** Determines the size of the gap between each copy of the image.
- **Blur:** Applies motion blur to the image, based on how quickly it is moving on each frame.

Horizontal Hold

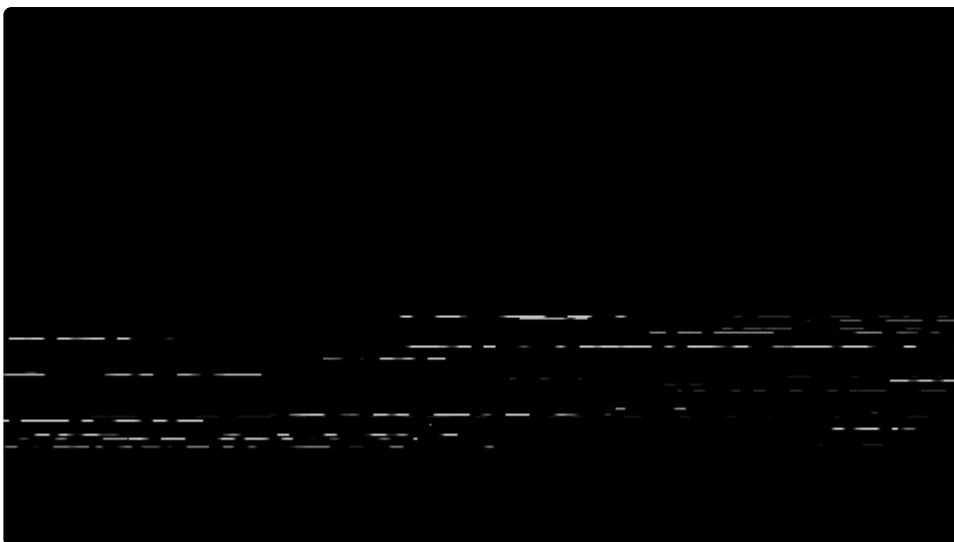
When horizontal hold lost synchronization on an analog television signal, each line of resolution could become shifted sideways, causing vertical edges within the image to become ragged. Here is the sample footage with only the horizontal hold component applied:



- **Enabled:** Toggles the horizontal hold component on or off.
- **Frequency:** Adjusts how often the horizontal hold is lost.
- **Amplitude:** Controls how far the lines may be shifted sideways.
- **Regularity:** Controls how consistently the horizontal position of the image is shifted. Lower values give more random results.

Electrical Interference

Electrical interference can be caused by any electromagnetic source near the television receiver. It presents as horizontal lines of noise over the image. Here is the electrical interference component from our sample footage, isolated over a black background:



- **Enabled:** Toggles the electrical interference component on or off.
- **Quantity:** Determines the number of lines which are present.
- **Width:** Controls the thickness of the individual lines.
- **Color:** Choose a color for the lines. White is the default, and most common. You can use the

eyedropper to choose a color from the layer, or click the swatch to open a color picker and choose any color you prefer. You can also manually enter the color values for the red, green, and blue channels.

Placement

Use these controls to alter the positioning of the electrical interference lines.

- **Center:** Sets the location for the center of the electrical interference, using X (horizontal) and Y (vertical) values.
- **Use Layer:** Select another layer from the timeline using, to use the selected layer's position to control the position of the electrical interference. When a layer is selected, the Position property above functions as an offset from the parent layer's position.
- **Area Width:** Defines the percentage of the frame height which will be filled by the electrical interference.

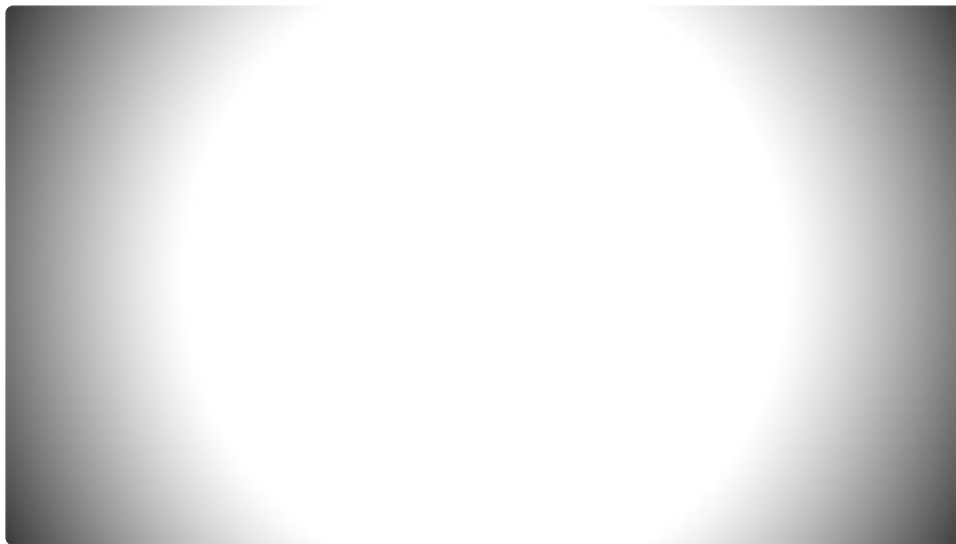
Gaps

The horizontal lines will be broken up by gaps. Use these controls to define how the gaps will appear.

- **Amount:** Adjusts the ratio of lines to gaps. Higher values increase the amount of gaps.
- **Frequency:** Changes the overall number of lines and gaps within the frame width.

Vignette

Darkens the corners and edges of the frame. Here is the vignette from our sample footage, on its own:



- **Enabled:** Toggles the vignette component on or off.
- **Horizontal Stretch:** Adjusts the width of the vignette, relative to the width of the frame.
- **Vertical Stretch:** Adjusts the height of the vignette, relative to the height of the frame.

- **Softness:** Adjusts the transition from full brightness to darkened vignette, around the vignette's edges.
- **Curvature:** Shifts the weighting of the transition, between the center of frame and the edge of the vignette.
- **Opacity:** Adjusts the opacity of the layer to which the vignette is applied, for some reason.

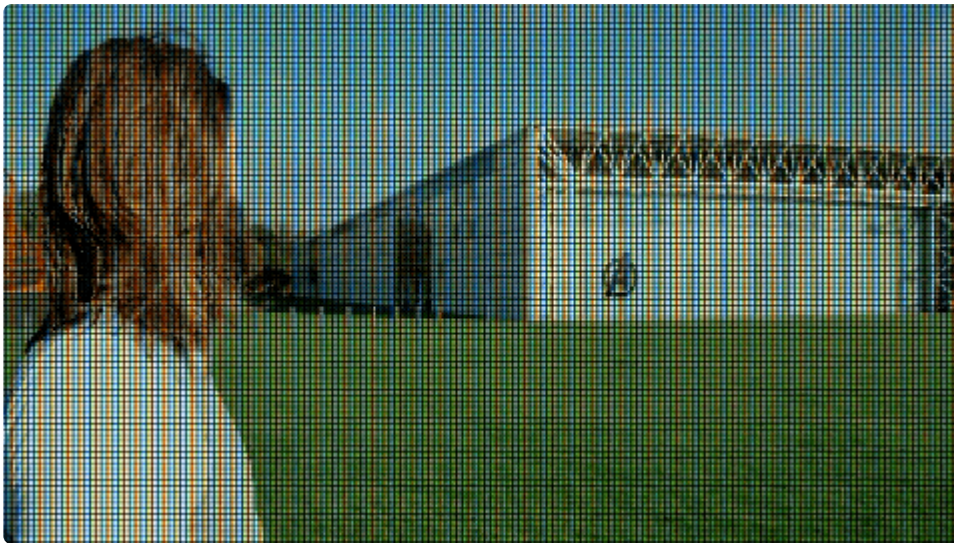
Background

These controls adjust the appearance of the vignette itself.

- **Opacity:** Defines how visible the vignette is. Higher values make the vignette more opaque, lower values make it more transparent.
- **Color:** Choose a color for the vignette. You can use the eyedropper to choose a color from the layer, or click the swatch to open a color picker and choose any color you prefer. You can also manually enter the color values for the red, green, and blue channels.

Monitor

The monitor component divides the image into a grid of squares, pixelating the image based on a resolution of your choice. This component was not used in our sample footage, but here is an example applied to the same source:



- **Enabled:** Toggles the Monitor component on or off.
- **Resolution:** Controls the number of vertical pixels used to represent the frame. the number of horizontal pixels will be calculated based on the aspect ratio of the frame.

Pixel Component

- **Width:** Sets the width of each pixel, as a percentage of its available width. At 1.00, each pixel will touch the pixels bordering it on the left and right. At lower values, a gap will be created between the

pixels.

- **Height:** Sets the height of each pixel, as a percentage of its available height. At 1.00, each pixel will touch the pixels bordering it on the top and bottom. At lower values, a gap will be created between the pixels.
- **Shift:** Each pixel contains red, green, and blue values (RGB) You can offset the color values using these controls.
 - **Red:** Shifts the red value of the pixel. Negative values shift it right, and positive values shift it left.
 - **Green:** Shifts the green value of the pixel. Negative values shift it right, and positive values shift it left.
 - **Blue:** Shifts the blue value of the pixel. Negative values shift it right, and positive values shift it left.

2.10. Keying

Keying is the term used for automatically removing parts of an image or video, usually by identifying a specific color. Ignite Pro includes several effects for keying your media. Each effect has its own page, where you can find full details of the effect and its controls.

- [Matte Enhancement](#)
- [Chroma Key](#)
- [Chroma UV Blur](#)
- [Color Difference Key](#)
- [Demult](#)
- [Difference Key](#)
- [Hue & RGB Key](#)
- [Luminance Key](#)
- [Remove Stock Background](#)

2.10.1. Chroma Key

This effect provides professional quality removal of any color from a source with precision control over edge detail, edge color correction and advanced spill replacement.

- **View:** Select how the chroma key will be displayed on the Viewer.
 - **Source:** Shows the original, unkeyed layer.
 - **Status:** Shows a black and white matte. This makes it easy to see at a glance which areas are not fully opaque. This mode does not show gradients of transparency. White areas are opaque, black areas are transparent, and all semi-transparent areas are displayed as a single tone of middle gray.
 - **Matte:** Shows a greyscale matte. This provides an accurate view of opaque and transparent areas.
 - **Despill Mask:** Displays the despill mask, if one is being used.
 - **Despill Map:** Shows the area being spill suppressed. White areas indicate where spill suppression will be applied.
 - **Result:** Shows the final composited result.

✿ Note that your choice in the View menu will affect final output.

- **Adaptive Color:** This method is particularly effective when working with uneven green screens. Even slight changes in tone or brightness across your green screen can cause keying complications. Adaptive color aims to improve results in such cases and can be particularly effective with fine detail areas such as lace and hair.

✿ Note that when adaptive color is activated the Gain setting will have a minimal effect. Key adjustments should be made primarily using the Clip Foreground and Clip Background settings.

- **Color:** Select the color to be removed by the key. You can use the eyedropper to choose a color from the layer, or click the swatch to open a color picker and choose any color you prefer. You can also manually enter the color values for the red, green, and blue channels.
- **Gain:** Gain is the base sensitivity of the chroma key. This is best used for the initial background removal. It should be adjusted until the subject is isolated, though you don't want to push the gain too far, or you will start to lose edge detail.
- **Balance:** Adjust the emphasis of the chroma key, controlling the range of colors that are affected. In practical use, it is usually best to try it at the minimum and maximum values to see which best suits your image.
- **Hue Balance:** Adjust the emphasis of the chroma key, controlling the range of hues that are affected. In practical use, it is usually best to try it at the minimum and maximum values to see which best suits your image.

- **Pre-Blur:** Applies a blur to the footage prior to keying. This can help with lower resolution footage.

Matte

- **Clip Background:** Crushes the black point of the matte, so that more parts of the image are removed. If parts of your green screen are still visible this should be used to remove them.
- **Clip Foreground:** Clips the white point of the matte, returning detail to the foreground. If parts of your subject are semi-transparent, you should reduce the clip foreground to make it fully opaque.
- **Clip Rollback:** After adjusting the clip foreground you may want to return some of the semi-transparency to the outer edges of your foreground. This helps to create a softer edge, although increasing this setting too much will cause an undesirable band of semi-transparency around the edge.
- **Gamma:** Adjusts the strength of the key. This can be useful for adjusting the fine detail at the edges of the key, particularly around hair and semi-transparent areas.
- **Erode/Expand:** This works in a similar way to the standalone Erode White filter and can be used to expand or erode the alpha matte. If you need to add or remove pixels from the edge of the key this can be very useful.
- **Despot Foreground:** Aims to remove holes in the foreground. Used subtly, this can improve overall keying quality without affecting edge detail.
- **Despot Background:** Aims to remove holes in the background. Used subtly, this can improve overall keying quality without affecting edge detail.
- **Softness:** Blurs the alpha, creating a softer edge to the key.
- **Bias:** Performs a white balance using the selected color, prior to applying the key. You can use the eyedropper to choose a color from the layer, or click the swatch to open a color picker and choose any color you prefer. You can also manually enter the color values for the red, green, and blue channels.

Edge Color

- **Subtract Background Color:** Increasing the subtract setting removes the background color (for example, green if you're using a green screen) from the semi-transparent areas of the image. This can be very effective for reclaiming the correct color in semi-transparent areas, such as glass.
- **Recover Edge Color:** A thin dark line can sometimes be seen on the keyed edges of white clothing or pale skin. The recover setting can counter this problem by adjusting the colors of the outer pixels. Rather than using their actual color, they will instead take on the color of the pixels further inside the foreground. Best used subtly.

Expansion Region Color

- **Method:** If Erode/Expand is set to a positive value, this determines the content of the expansion region.
 - **Despilled Source:** The contents of the source layer are revealed, but with spill suppression applied to neutralize the background color.
 - **Source:** The contents of the source layer are revealed.
 - **Hard Color:** Select a color to be blended into the spill area. This option gives a stronger result

than Soft Color.

- **Soft Color:** Select a color to be blended into the spill area. This option gives a more subtle result than Hard Color.
- **Color:** This option appears when the Method is set to either **Hard Color** or **Soft Color**. Choose a color to fill the expansion area. You can use the eyedropper to choose a color from the layer, or click the swatch to open a color picker and choose any color you prefer. You can also manually enter the color values for the red, green, and blue channels.

Retain Mask

Separate layers can be specified as additional masks to aid with the overall keying. Retain masks identify areas the key should ignore.

- **Source:** Select any timeline layer to use it as the source of the mask.
- **Matte Channel:** Select the channel of the source layer which will be used to define the matte.
- **Softness:** Applies a blur to the selected channel, thereby softening the edges of the matte.
- **Invert:** Reverses the transparent and opaque areas of the matte.
- **Replace:** Determine what content will be used to fill the matte area
 - **Despilled Source:** The contents of the source layer are revealed in the matte area, but with spill suppression applied to neutralize the background color.
 - **Source:** The contents of the source layer are revealed in the matte area.
 - **Hard Color:** Select a color to be blended into the spill area. This option gives a stronger result than Soft Color.
 - **Soft Color:** Select a color to be blended into the spill area. This option gives a more subtle result than Hard Color.
- **Color:** This option appears when the Method is set to either **Hard Color** or **Soft Color**. Choose a color to fill the expansion area. You can use the eyedropper to choose a color from the layer, or click the swatch to open a color picker and choose any color you prefer. You can also manually enter the color values for the red, green, and blue channels.

Remove Mask

Separate layers can be specified as additional masks to aid with the overall keying. Remove masks identify areas that should definitely be removed.

- **Source:** Select any timeline layer to use it as the source of the mask.
- **Matte Channel:** Select the channel of the source layer which will be used to define the matte.
- **Softness:** Applies a blur to the selected channel, thereby softening the edges of the matte.
- **Invert:** Reverses the transparent and opaque areas of the matte.

Spill Suppression

The chroma key effect also includes built-in spill suppression. Even a perfectly shot video can still suffer

from color spill. This is when the green or blue of the screen is reflected on the subject. While this is often difficult to see in the original image, once it has been composited it becomes extremely obvious, resulting in unwanted color fringing around edges.

- **Amount:** Varies the strength of the spill suppression.
- **Hue Range:**
- **Balance:**
- **Hue Balance:** Expands or contracts the spill suppression area. Best adjusted while in the Despill Map view mode.

Spill Replacement

Spill replacement aims to replace the unwanted spill with a new spill color.

- **Luminance Change:** Varies the luminance adjustment based on the replacement color.
- **Source Layer:** A specific layer can be selected for spill replacement. This then updates the replacement color as the selected layer changes.
- **Color:** A color can be selected manually for spill replacement.
- **Blur:** When using a source layer for spill replacement, the layer can be blurred for a subtler effect.

Despill Mask

A specific layer can be used to manually define areas to be spill suppressed.

- **From:** Selects the Despill Mask layer.
- **Color Dist Max:** Adjusts the range of color to be suppressed.
- **Softness:** Blurs the Despill Mask.

Color Correction

Color correction is integrated into the chroma key effect, enabling you to color correct the foreground, background and edge of your key.

- **Enable:** Turns the color correction features on and off. The remaining controls will only be visible once Color Correction is Enabled.

Edge Resize

- **Softness:** The edge area can be blurred and enlarged.
- **Glow:**

The strength, hue, saturation and lightness can be adjusted individually for the foreground, edges, and background.

Foreground

- **Strength:** The amount of color adjustment applied. This slider directly translates to the distance of the control point from the center of the top color wheel.
- **Hue:** The hue toward which the colors are adjusted. This radial dial is directly equivalent to the top color wheel, and represents the angle at which the control point sits within the wheel.
- **Saturation:** The saturation of the selected hue. This slider is the same control as the Saturation slider beside the top color wheel.
- **Lightness:** The Lightness of the selected hue. This slider is the same control as the Lightness slider beside the top color wheel.

Edge

- **Strength:** The amount of color adjustment applied. This slider directly translates to the distance of the control point from the center of the middle color wheel.
- **Hue:** The hue toward which the colors are adjusted. This radial dial is directly equivalent to the middle color wheel, and represents the angle at which the control point sits within the wheel.
- **Saturation:** The saturation of the selected hue. This slider is the same control as the Saturation slider beside the middle color wheel.
- **Lightness:** The Lightness of the selected hue. This slider is the same control as the Lightness slider beside the middle color wheel.

Background

- **Strength:** The amount of color adjustment applied. This slider directly translates to the distance of the control point from the center of the bottom color wheel.
- **Hue:** The hue toward which the colors are adjusted. This radial dial is directly equivalent to the bottom color wheel, and represents the angle at which the control point sits within the wheel.
- **Saturation:** The saturation of the selected hue. This slider is the same control as the Saturation slider beside the bottom color wheel.
- **Lightness:** The Lightness of the selected hue. This slider is the same control as the Lightness slider beside the bottom color wheel.

2.10.2. Chroma UV Blur

The UV blur can be essential depending on the way your video camera stores its data.

After keying some video you may notice a pixellated 'stepping' around the edge of the key. If this occurs, add a chroma UV blur before the key itself. This will help to smooth out the edge. YUV color separates the luminance of each pixel (Y) from the chroma data (UV) Blurring only the chrominance data smooths the edges without losing the contrast detail which defines the edge location.

- **Radius:** Controls the amount of blur, defined as a radius in pixels.
- **Direction:** Select how the blur is applied.
 - **Horizontal & Vertical:** The blur is applied in all directions. This is the usual method used for blurs.
 - **Horizontal:** The blur is only applied horizontally.
 - **Vertical:** The blur is only applied vertically.

2.10.3. Color Difference Key

This is a simpler keying tool than the chroma key effect, and is used for removing green screen and blue screen backgrounds from video and images.

- **Screen Color:** Choose the color to be removed from your video.
 - **Red:** Red screens are sometimes used for keying non-human subjects, such as mechanical models containing a lot of gray.
 - **Green:** Green screen is the most common background for keying, because most video cameras record more data in the green channel than in the other color channels. It is also effective for human subjects, and provides for good separation from skin tones.
 - **Blue:** Blue was the most common color for keying with film, due to the processed used for analog keying, and because it is most distinct from skin tones. It is still an effective option for video keying of human subjects, but is less common than green.
- **Min:** Increase the Min setting to remove a larger range of tones centered on the selected color.
- **Max:** Reduce the Max setting to restore edge areas to the matte. If the Max value is set below the Min value, the key will be inverted, and all colors except the selected color will be removed.
- **Gamma:** Shifts the gamma of the matte, which is an adjustment of the luminance which affects shadow tones more than highlight tones. In practice, increasing Gamma reduces the area removed by the key, and reducing the gamma increases what is removed.
- **View Matte:** Toggling this option displays the matte on the viewer, as a grayscale image where White is completely retained, and black is completely removed. This can be useful for identifying problem areas which may need further adjustment.

2.10.4. Demult

Quickly key out the background from stock footage shot on black and generate an embedded alpha channel. Very useful for compositing smoke, explosions and similar.

- **Alpha From:** Select the values which will be used to generate the alpha channel.
 - **Max RGB:** Compares the red, green, and blue values, and uses the highest value for each pixel. These values are then converted to luminance, to generate a grayscale image which is used as an alpha channel for the image.
 - **Luminance:** The luminance channel of the image is directly converted to an alpha channel.
 - **Average RGB:** The red, green, and blue values are added, then divided by three to get an average value for each pixel. These values are then converted to luminance, to generate a grayscale image which is used as an alpha channel for the image.

2.10.5. Difference Key

Removes areas of a layer based on differences with another layer. This works best with stationary shots, where you film a clean plate of the background, keep the camera locked off, and then film your subject. The Difference Key then compares each pixel of the two shots, and any pixels that remain the same are removed by the key. The background, which is the same in both shots, is thus removed, and only the subject remains.

- **Source Layer:** Choose any layer from the timeline. The selected layer will be compared to the current layer to generate the key.
- **Blurred Comparison:** Applies an invisible blur to each layer before calculating the key. Used judiciously, this can help to overcome difficulties like grain or noise in the footage.
- **Threshold:** Defines how different each pixel must be in order to be removed.
- **Softness:** Feathers the edge of the key to create a softer edge.

2.10.6. Hue & RGB Key

This effect keys the layer based on a color of your choice. You can use the hue or RGB values to generate the key.

- **Color:** Choose a color to be removed from the layer. You can use the eyedropper to choose a color from the layer, or click the swatch to open a color picker and choose any color you prefer. You can also manually enter the color values for the red, green, and blue channels.
- **Tolerance:** Controls the range of hues surrounding the exact color you have chosen, which will also be removed.
- **Edge Softness:** Applies a blur to the matte generated by the key, to soften its edges.
- **Match Colors By:** Select whether colors are matched based on hue, or RGB values.
- **Invert:** Reverses the results of the key, so only the selected color remains, and all other colors are removed.
- **View Matte:** Toggling this option displays the matte on the viewer, as a grayscale image where White is completely retained, and black is completely removed. This can be useful for identifying problem areas which may need further adjustment.

2.10.7. Luminance Key

This effect keys the layer based on its brightness. This is commonly used to remove black or white backgrounds, and can also be particularly useful for sky replacement.

- **Key Type:** Luminance Key can remove either end of the luminance range. Select the type which will be used.
 - **Key Out Brighter:** Removes the brightest tones, leaving the darker areas.
 - **Key Out Darker:** Removes the darkest tones, leaving the brighter areas.
- **Threshold:** Sets the tonal value which marks the limit of the key. Tonal values on one side of the threshold are retained, and values on the other side are removed.
- **Tolerance:** Softens the transition surrounding the threshold. Higher values create a more gradual transition between the areas which are removed and the areas which are retained.
- **View Matte:** Toggling this option displays the matte on the viewer, as a grayscale image where White is completely retained, and black is completely removed. This can be useful for identifying problem areas which may need further adjustment.
- **Brightness Used:** Select the channel that will be used to determine the luminance values which the effect will process. Choose between **Intensity**, **Lightness**, or **Luminosity**.

2.10.8. Remove Stock Background

For stock footage shot on a black or white background, this tool makes it easy to remove those backgrounds. In this example image, a clip of smoke filmed in front of black is being composited onto another media clip. Remove Stock Background has been applied to the left side of the clip to remove the black, leaving only the smoke.



- **Background:** Choose whether **Black** or **White** is removed from the layer.
- **Channel:** Choose the channel used to determine what area is removed.
 - **Max RGB:** Uses the highest value among the RGB channels to calculate removal.
 - **Luminance:** Calculates the removal based on the luminance channel.
 - **Average RGB:** Averages the red, green and blue values, and uses the result to calculate the removal.
- **Balance:** Adjusts how much of the tonal range is removed.
- **View Matte:** Reveals, on the Viewer, the matte created by the removal calculations.

2.11. Lights & Flares

These effects focus on creating light-based effects and enhancements, such as lens flares, glows and light rays. Each effect has its own page where you can find full details of the effect and its controls.

- [Anamorphic Lens Flare](#)
- [Auto Light Flares](#)
- [Custom Light Flares](#)
- [Gleam](#)
- [Glow](#)
- [Inner Glow](#)
- [Light Flares](#)
- [Light Leak](#)
- [Light Rays](#)
- [Light Streaks](#)
- [Neon Glow](#)
- [Outer Glow](#)
- [Super Glow](#)

2.11.1. Anamorphic Lens Flare

Simulates the use of an anamorphic lens, creating broad flares based on the source layer.



The **threshold** determines how much of the source layer produces flaring. The resultant effect can be adjusted with the **intensity** property. The **blur flare** property creates a less distinct flare, which can often look more realistic.

- **Threshold:** Specifies the brightness level above which the source layer will produce flaring.
- **Intensity:** Controls the overall brightness of the generated flares affecting all streaks
- **Blur Flare:** Blurs the linear streaks created by the flare. Fairly low blur settings tend to give the most realistic results
- **Blend:** Select the blend mode used to composite the flares onto the layer.
- **Number of Streaks:** Specify the number of streaks which will be present. The effect includes one streak by default, but you can add up to 10 unique streaks to build more complex effects. Each streak will have a section of numbered Streak controls below.

Streak 1 (duplicate controls will be listed for each streak number)

- **Length:** Adjusts the length of the streak.
- **Intensity:** Controls the overall brightness of the streak.
- **Offset:** Adjusts the brightness of the flares independently of saturation. Reducing the offset and increasing the Intensity allows you to create more colorful flares.
- **Orientation:** Select the direction of the streaks.

- **Horizontal:** The streaks will run horizontally.
- **Vertical:** The streaks will run vertically.
- **Alignment:** Specify the position of the streaks within the frame. The options displayed will vary based on the selected Orientation.
 - **Top:** The flares will originate from the top of the frame, and extend into the frame based on the Length setting.
 - **Center:** The flares will be centered on the bright spots in the frame and extend in both directions. If the orientation is set to Vertical, they will extend up and down. If the Orientation is set to Horizontal, they will extend left and right.
 - **Bottom:** The flares will originate from the bottom of the frame, and extend into the frame based on the Length setting.
 - **Left:** The flares will originate from the left side of the frame, and extend into the frame based on the Length setting.
 - **Right:** The flares will originate from the right side of the frame, and extend into the frame based on the Length setting.
- **Horizontal Pivot:** Flips the streaks from left to right.
- **Vertical Pivot:** Flips the streaks from top to bottom.

Colorize

By default the streaks will take their color from the layer to which they are applied. You can also introduce a specific color of your choice into the streaks.

- **Amount:** Adjusts the balance of the original color with the new color. 0.00 shows only the original color and 1.00 shows only the selected Colorize color.
- **Color:** Choose a color to be applied to the flare. You can use the eyedropper to choose a color from the layer, or click the swatch to open a color picker and choose any color you prefer. You can also manually enter the color values for the red, green, and blue channels.

2.11.2. Auto Light Flares

The **Auto Light Flares** effect shares many properties with the [Light Flares](#) effect. The primary difference is that auto light flares identifies bright areas in the layer and applies light flares automatically, adjusting intensity and scale based on the source.



The **Hotspot** property group is different in auto light flares, providing control over where the light flares appear.

- **Threshold:** Sets how bright a pixel has to be for a light flare to be drawn. At high thresholds, flares will only appear on the brightest parts of the layer. Lowering the threshold will produce more light flares on less bright areas.
- **Max flares:** Determines how many flares can be drawn.

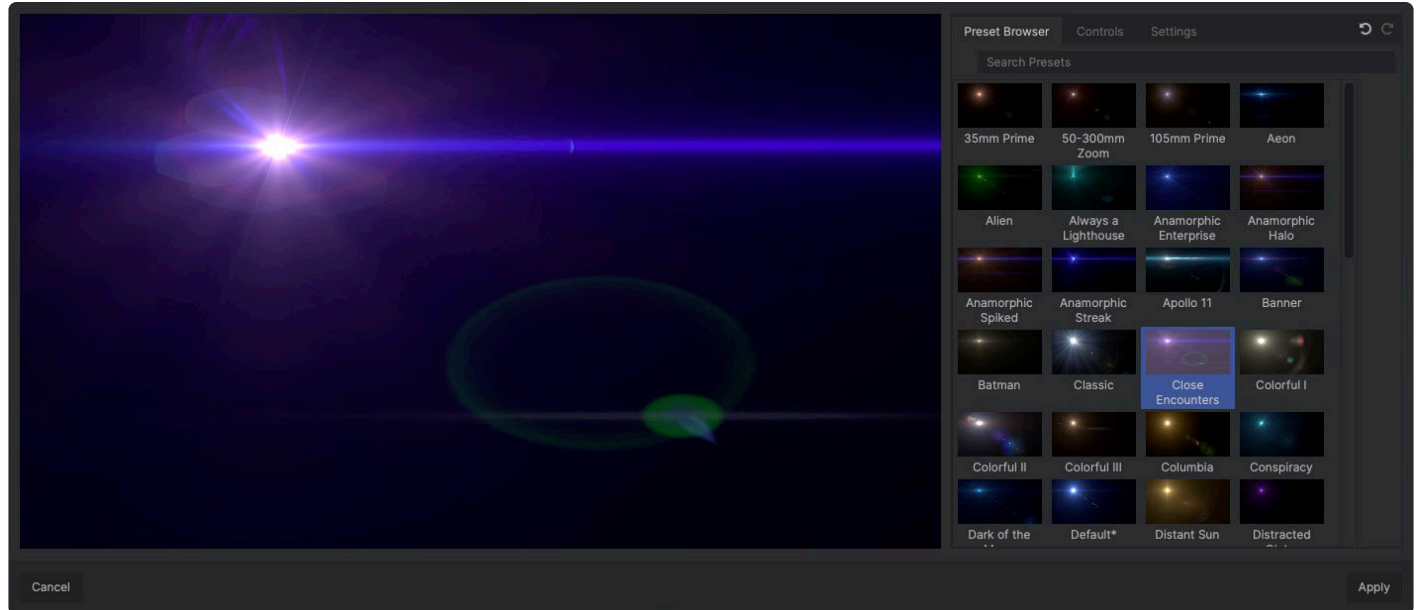
Flare appearance can be adjusted as with the standard light flares effect.

2.11.3. Custom Light Flares

PRO EXCLUSIVE

The Custom Light Flares effect is a HitFilm Pro exclusive.

The Custom Light Flares effect is built on a powerful preset system which combines simplicity of use with complete control over every aspect of the effects. Any of the more than 60 presets can be used on any timeline as-is, but you also have the option of digging all the way down into the individual components of any preset, to completely customize its look and behavior.



Effects Controls

The controls for using the Custom Light Flares are accessed through the Controls panel, like any other effect. The deeper controls for the effect are accessed through the Options button, and are discussed fully on the [Light Flares Browser](#) page of this manual.

- **Options:** The Options button opens the Light Flares Preset Browser, where you can choose your desired preset or customize the individual components of the flare. See the [Light Flares Browser](#) page for full details.
- **Hotspot Position:** The controls in this section alter the position of the primary hot spot of the flare effect. You can move the hotspot either by editing the numeric values here, or by dragging the hotspot on the Viewer.
 - **Center:** These two values define the X (horizontal) and Y (vertical) position of the hot spot on the canvas.
- **Pivot Position:** This control alters the position of the pivot point around which the elements of the flare will rotate when the hot spot is moved.
 - **Center:** These two values define the X (horizontal) and Y (vertical) position of the pivot position on the canvas.

- **Intensity:** Adjusts the intensity (perceived as brightness) of the effect as a whole.
- **Scale:** Uniformly changes the size of all components of the flare.
- **Blend:** Select the blend mode used to composite the flares onto the layer.
- **Global:** The controls in this section alter the effect globally.
 - **Color:** Tints the effect toward the selected color. This does not directly replace the colors of individual elements, but tints all existing colors toward your chosen hue.
 - **Saturation:** Alters the overall saturation of the flare.
 - **Hue Shift:** Rotates the existing colors in the effect around the color wheel, by the number of degrees specified.
- **Hotspot:** These controls alter the hotspot of the effect specifically.
 - **Brightness:** Adjusts the brightness of the hot spot.
 - **Color:** Tints the hot spot toward the selected color. This does not directly replace the original color of the hot spot, but tints its existing color toward your chosen hue.
 - **Scale:** Adjusts the size of the hot spot, without affecting the other elements.
- **Other Elements:** These controls edit the secondary components of the flare.
 - **Brightness:** Adjusts the brightness of the secondary elements, independent of the hot spot.
 - **Color:** Tints the secondary elements of the flare toward the selected color. This does not directly replace the original colors of the secondary elements, but tints their existing colors toward your chosen hue.
 - **Scale:** Adjusts the size of the secondary elements without altering the hot spot.

Creating Custom Light Flares

You can create your own light flares by either editing one of the existing Light Flare presets, or building your own flare from scratch. Click the **Options** button in the Custom Light Flares controls to open the Light Flares Browser. In the **Preset Browser** tab, you can click any preset to select it for immediate use, or to use it as a starting point to build your own custom flare. The **Controls** tab of the browser gives you access to additional controls for customizing the effect.

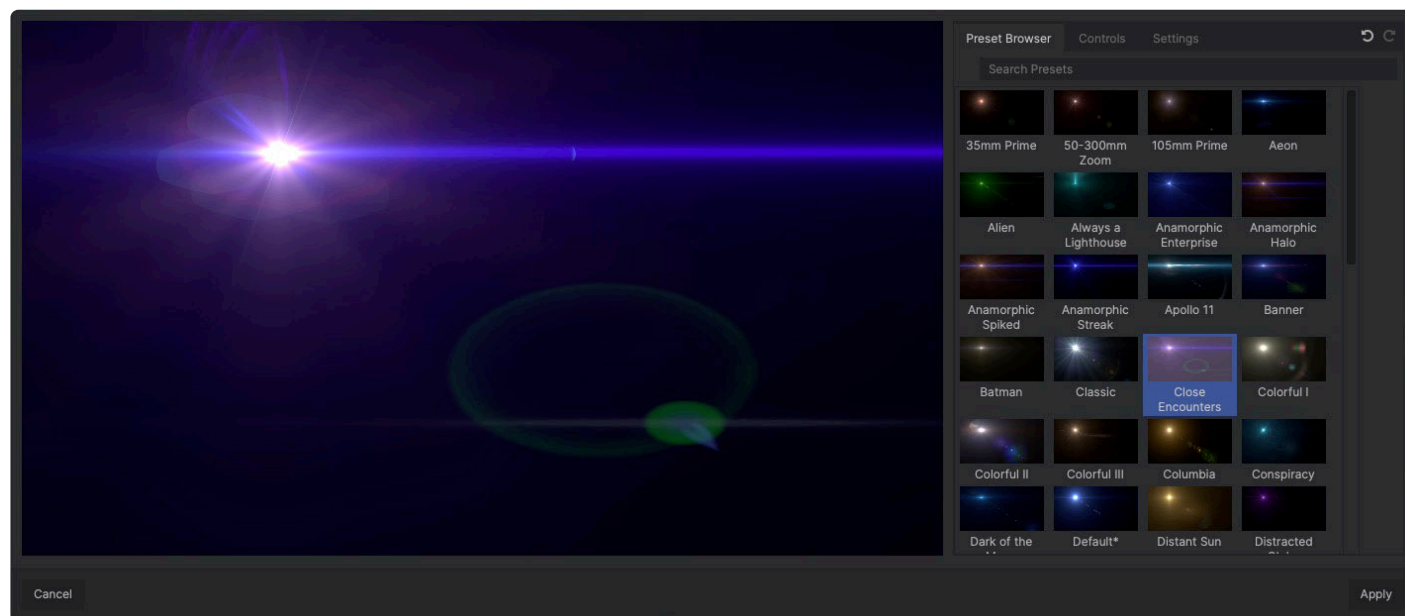
To create a new flare preset:

1. In the controls panel for the Custom Light Flares, click the Options button to open the Light Flares browser.
2. Click the thumbnail for the browser you want to use as a starting point.
3. Click the Controls tab to access the controls for the flare elements.
4. Edit the elements to create your new flare.
 - a. Use the New Element button to add any additional elements you require.
 - b. Right-click any existing element to **Duplicate**, **Remove**, or **Rename** it.
5. If you wish to save any single customized element for future use, right-click the element and select **Save As Element Preset...**
6. Once you are completed editing your preset, click the **Preset Browser** tab to return to the list of presets.
7. Your edited preset will show an asterisk after its name, indicating it has been modified. Right-click that preset and select **Save As...** to name your new preset and save it to the preset browser.

2.11.3.1. The Light Flares Browser

Preset Browser Tab

The Preset Browser is where you can browse the library of the installed flare presets, and select a preset for use or for further editing. There are over 60 presets you can choose from.

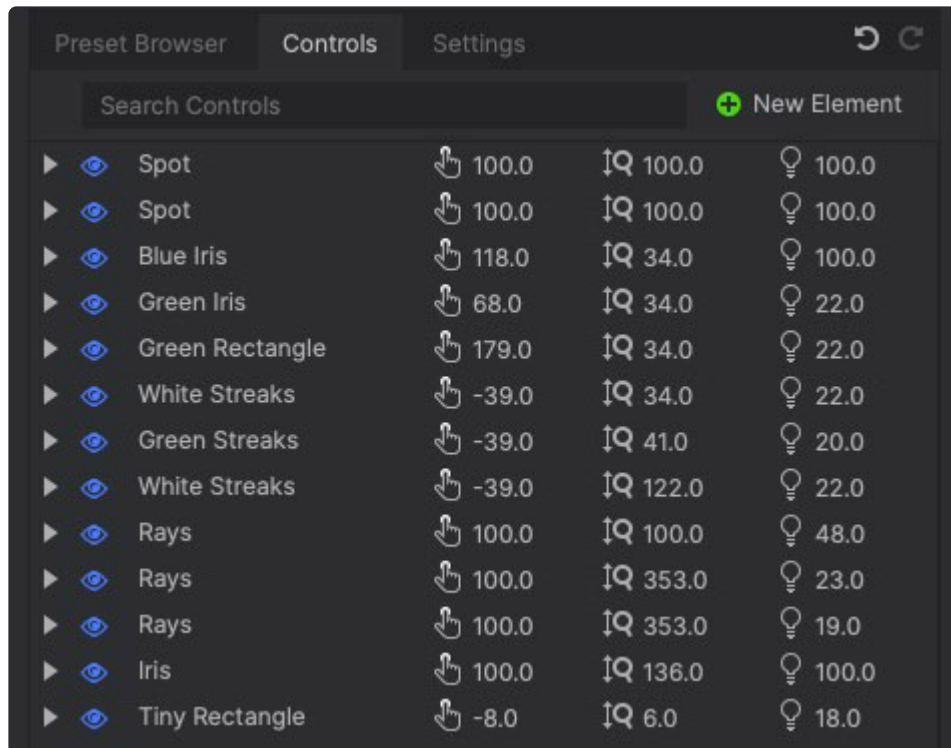


On the left, the Preview pane displays your currently selected preset, including any customizations you have made. On the right, you can scroll through the library of presets to make a selection. If you know the name of the preset you want, you can use the search box to locate it.

- **Apply:** Click the Apply button at the bottom right to apply your changes to the Custom Light Flares effect, close the Preset Browser window and return to the HitFilm interface
- **Cancel:** Click the Cancel button at the bottom left of the window to discard your changes and return to the HitFilm Interface.

Controls Tab

The Controls tab provides access to a deeper level of control, allowing you to modify each individual element of the lens flare effect. Each element is listed here, with top-level controls to alter its basic appearance. Each element can also be opened to access the root-level controls, for full customization.




- **+ New Element:** Click the New Element button to add another element to the flare. This opens a menu with four options:
 - **Spot:** A Spot element is a bright point within your flare effect. Spots are most commonly used in the hot spot of the flare.
 - **Rays:** A Rays element adds radial lines which emanate outward from the hot spot. The size, number, and appearance of the rays can be edited.
 - **Iris:** An Iris element replicates the appearance of the flare reflecting off of an internal lens component, in the shape of the camera's iris. At its most basic, it is a geometric shape, but in practical application this is usually asymmetrically distorted.
 - **Element Preset....:** This option opens a menu of preconfigured elements. It can save time to select an element preset that is close to what you want, rather than starting from scratch every time.

Individual Element Controls

Each element in the list has controls for quickly modifying its appearance.

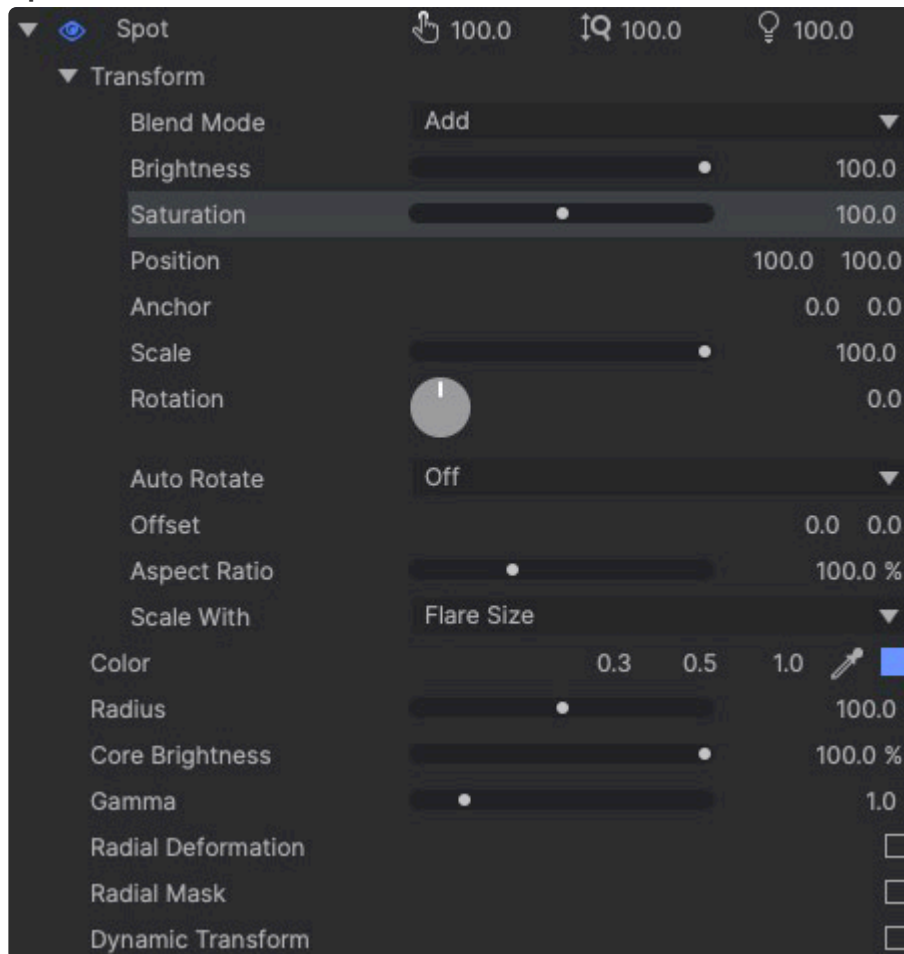
- **👁 Visibility:** Click the eye to toggle visibility for any element.
 - Double-click this toggle for any element to toggle all elements at once.
 - Click-drag across multiple visibility toggles to show or hide multiple elements.
- **👤 Position:** This value adjusts the position of the element along the center line of the flare, essentially moving it forward or backward in the preview.
- **🔍 Scale:** This value alters the size of the selected element.

-  **Brightness:** This value adjusts the brightness of the selected element.

Root Level Controls For Each Element

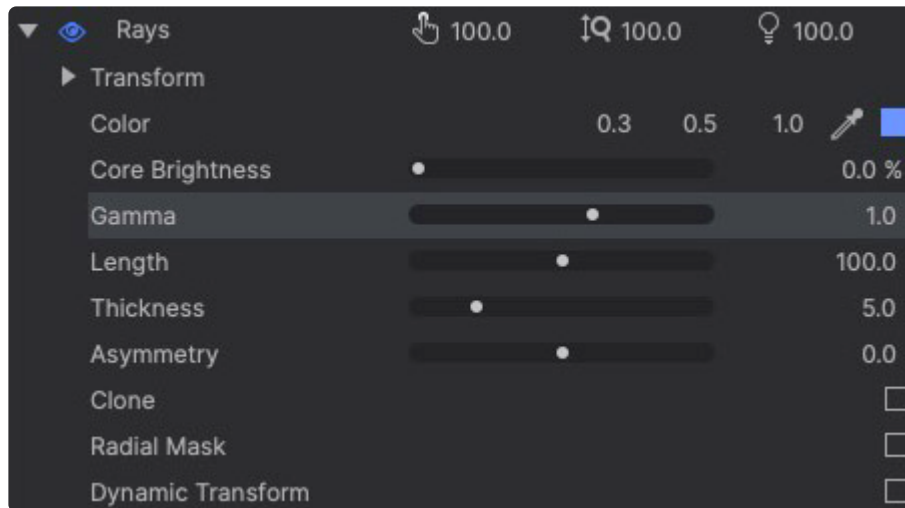
In addition to the individual element controls shown in the Controls tab, each element can be opened to reveal its root controls. These controls vary based on the type of element being edited.

- **Spot**



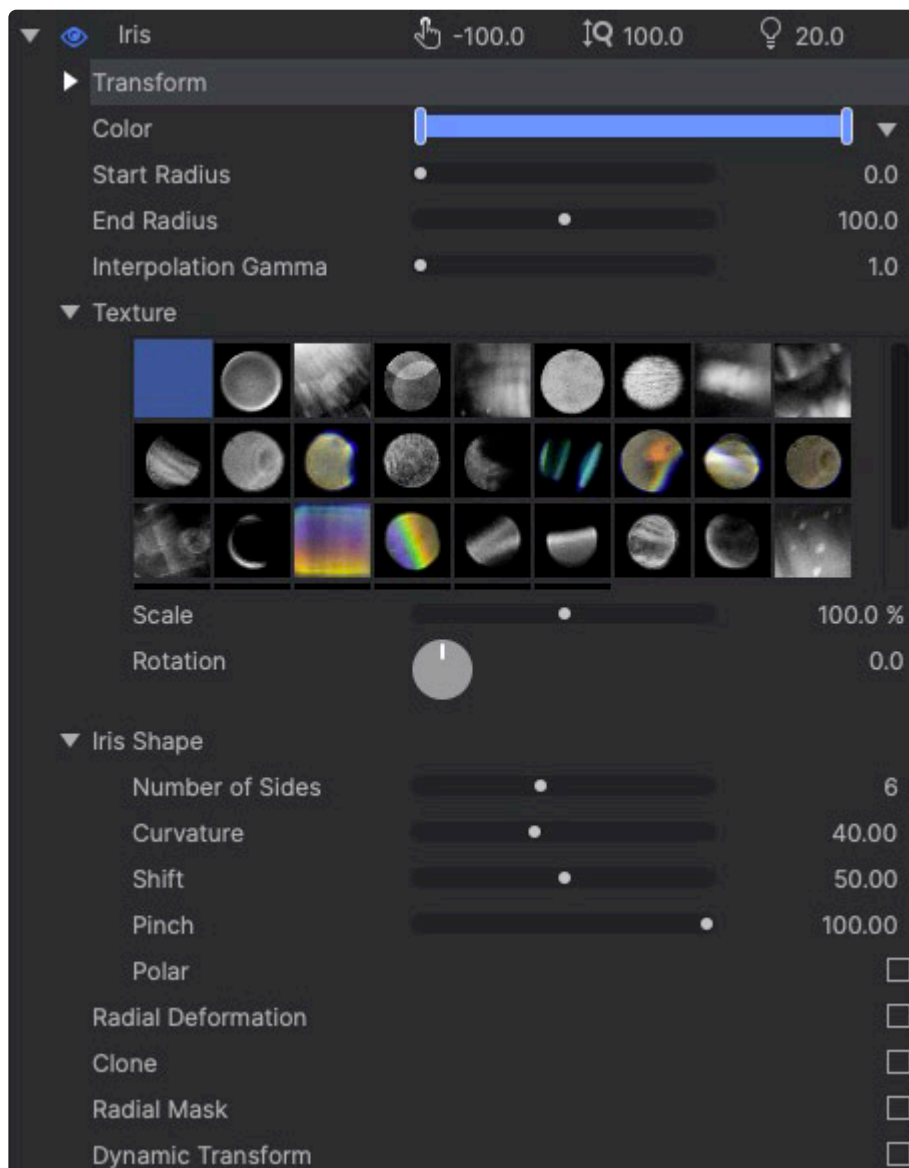
- *See the [Spot Elements](#) page for full details on the root level controls for spot elements.

- **Rays**



- *See the [Rays Elements](#) page for full details on the root level controls for rays elements.

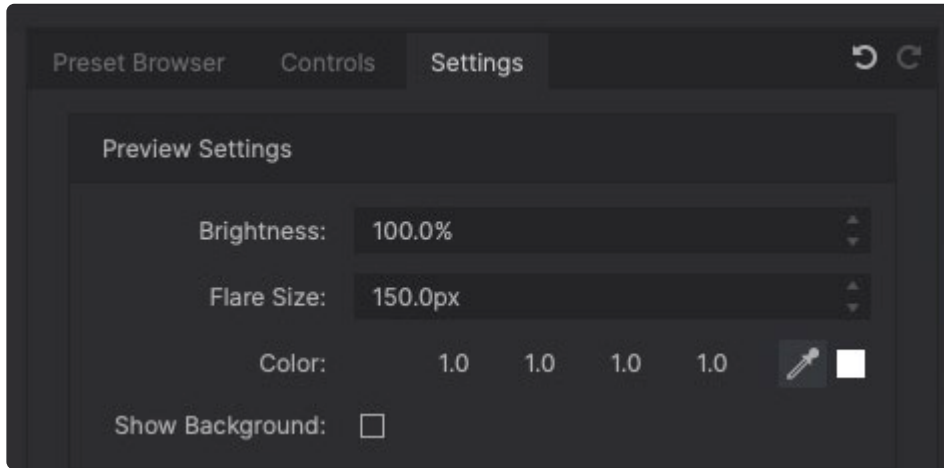
• Iris



- *See the [Iris Elements](#) page for full details on the root level controls for iris elements.

Settings Tab

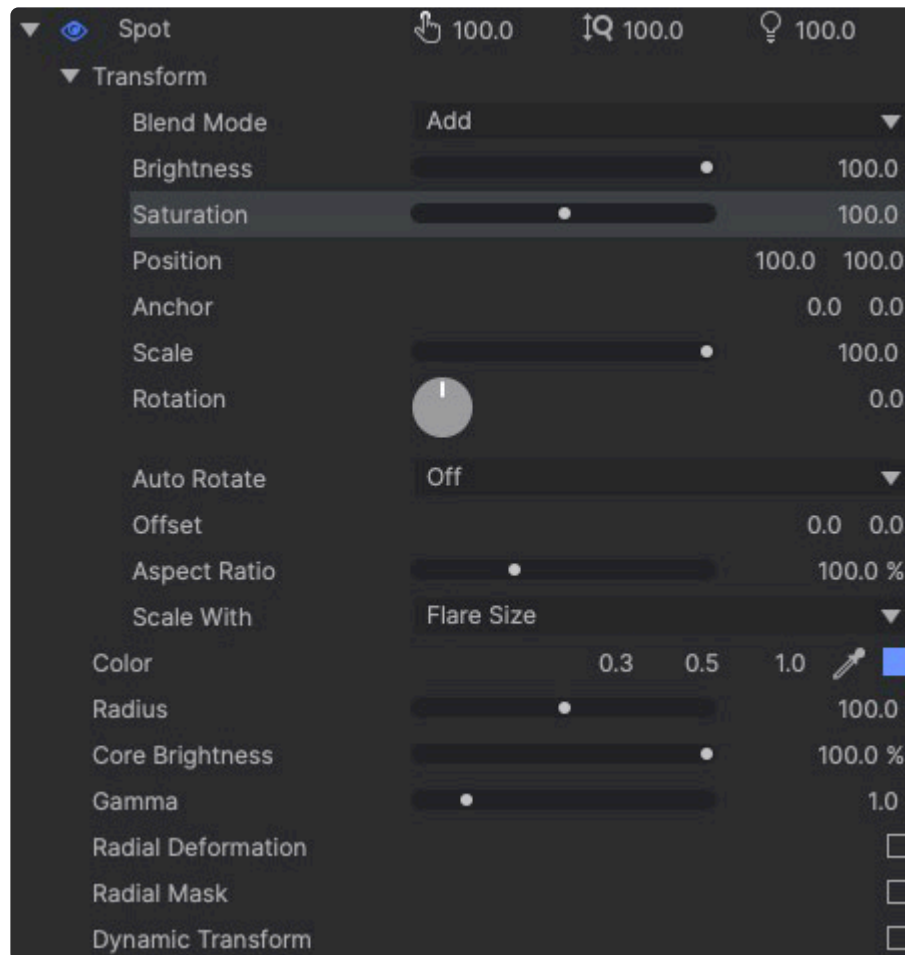
The Settings tab contains controls used to adjust the appearance of the effect preview, as shown in the preview pane of the preset browser.



- **Brightness:** Changes the brightness of the flare in the preview image. This does not alter the appearance of the flare on your timeline.
- **Flare Size:** Changes the size of the flare in the preview image. This does not alter the appearance of the flare on your timeline.
- **Color:** Alters the color of the preview image by blending it with the hue of your choice.
- **Show Background:** Enable this option to render the contents of your timeline in the preview window, if you wish to preview your flare in a more accurate representation of your final shot.

2.11.3.2. Spot Elements

A Spot element is a bright point within your flare effect. Spots are most commonly used at the hot spot of the flare, but can also be used to create soft, bright circular elements. All controls for customizing a spot element are detailed below.



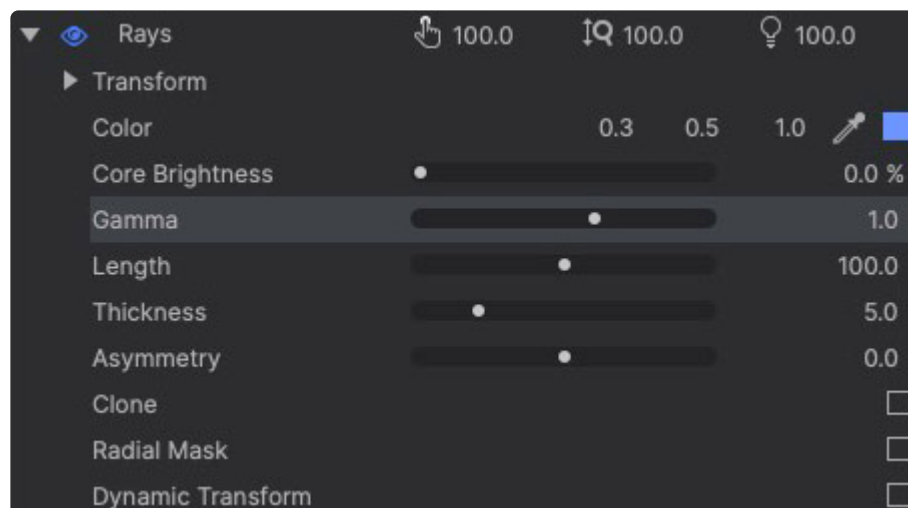
- **Transform:** This section contains all of the transform controls for the spot element.
 - **Blend Mode:** Select the blend mode used to combine the element with the other elements that make up the flare.
 - **Brightness:** Adjusts the brightness of the element.
 - **Saturation:** Adjusts the saturation of the element, in relation to its selected color.
 - **Position:** Specifies the position of the element on the X (horizontal) and Y (vertical) axes.
 - **Anchor:** Allows you to move the element's center of rotation away from the position.
 - **Scale:** Alters the size of the element.
 - **Rotation:** Rotates the element around the anchor point. When the anchor point is offset from the position, changing the rotation will spin the element in a circle with the radius of the position/anchor offset.
 - **Auto Rotate:** Auto rotation allows the rotation of the element to be controlled by the movement of the hot spot.
 - **Off:** Rotation is controlled manually.

- **Towards Light:** The element automatically rotates toward the hot spot position.
 - **Towards Center:** The element automatically rotates toward the pivot position of the flare.
- **Offset:** Offsets the anchor point and position from the center line of the effect.
- **Aspect Ratio:** Defines the width of the element as a percentage of the height.
- **Scale With:** Determines how the size of the flare is controlled.
 - **Flare Size:** Increasing the Scale of the Flare effect increases the size of the element.
 - **Layer Size:** Increasing the size of the layer to which the flare effect is applied will increase the size of the element.
- **Color:** Choose a color for the selected element. Click the Swatch to open a color picker and choose any color. Use the pipette if you wish to select a color from anywhere in the HitFilm interface. Or manually edit the channel values to mix the color of your preference.
- **Radius:** Adjusts, in pixels, the radius of the spot.
- **Core Brightness:** Adjusts the brightness of the spot. The effect will be more noticeable when the selected color is not pure white.
- **Gamma:** Adjusts the gamma of the spot, which has the effect of altering the glow or feather surrounding the spot.
- **Radial Deformation:** These controls distort the edge of the element, so it is not a perfect circle. This helps to replicate the distortions, imperfections, and inconsistencies created by real lenses.
 - **Frequency:** Adjusts the number of points at which the element is deformed. Low numbers give it a blobby appearance, while higher numbers create more of a spiky appearance.
 - **Radius Shift:** Determines the size of the distortions, by defining their depth as a percentage of the radius.
 - **Seed:** Randomizes the position of the distortions. Each seed value provides a different pattern of distortions.
 - **Seed Evolution:** Creates animation in the distortion while the element moves. Higher values increase the speed of the animation.
- **Radial Mask:** A radial mask cuts a radial section out of the element.
 - **Angle:** Defines the size of the masked area, as the angle (in degrees) from the center line to each side of the mask.
 - **Fade:** Feathers the edges of the selection to soften the transition.
 - **Rotation:** Defines the angle of the center line of the radial mask.
 - **Loops:** Specifies how many instances of the mask are present.
 - **Auto Rotate:** Enabling auto rotation causes the mask angle to change as the flare moves.
 - **Off:** No rotation is applied to the radial mask.
 - **Towards Light:** As the flare is moved, the angle of the radial mask rotates to keep it pointed toward the hot spot of the flare.
 - **Towards Center:** As the flare is moved, the angle of the radial mask rotates to keep it pointed toward the center of the flare.
 - **Towards Object:** As the flare is moved, the angle of the radial mask rotates to keep it pointed toward the center of the object to which the flare is applied.
- **Dynamic Transformation:** Dynamic transformation alters the appearance of the element based on its position.
 - **Region:** These controls define how the dynamic transformation is controlled.
 - **Animate From:** Choose the region on which the animation will be based.

- **Center:** This option applies the transformation based on the element's proximity to the center of the flare.
- **Border:** This option applies the transformation based on the element's proximity to the edges of the frame.
- **Light:** This option applies the transformation based on the element's proximity to the hot spot of the flare.
- **Radius:** Defines the percentage by which the the radius of the element can be altered by the dynamic transformation, as the flare moves.
- **Falloff:** Controls the interpolation of the transformation.
 - **Linear:** Applies the transformation linearly across the animation region.
 - **Smooth:** The animation is smoothed at the extreme ends of the animation region.
 - **Quadratic:** Animation is smoothed more strongly, based on a quadratic curve.
- **Invert:** Inverts the region map, so the element gets smaller rather than larger, as it approaches the selected region.
- **Transform:** These controls determine how the element will be modified as it gets nearer to the selected region.
 - **Source:** Choose the source of movement from which the transformation will be calculated.
 - **Object Position:** Moving the object to which the flare has been applied will alter the transformation.
 - **Light Position:** Moving the hotspot of the flare will alter the transformation.
 - **Brightness:** Determine how much the brightness of the element is affected by its proximity to the selected region.
 - **Scale:** Determine how much the size of the element is affected by its proximity to the selected region.
 - **Radial Mask Angle:** Controls the angle of any radial masks, based on the element's proximity to the selected region.

2.11.3.3. Rays Elements

A Rays element adds radial lines which emanate outward from a center point. The size, number, and appearance of the rays can be edited. All controls for editing a rays element are detailed below.



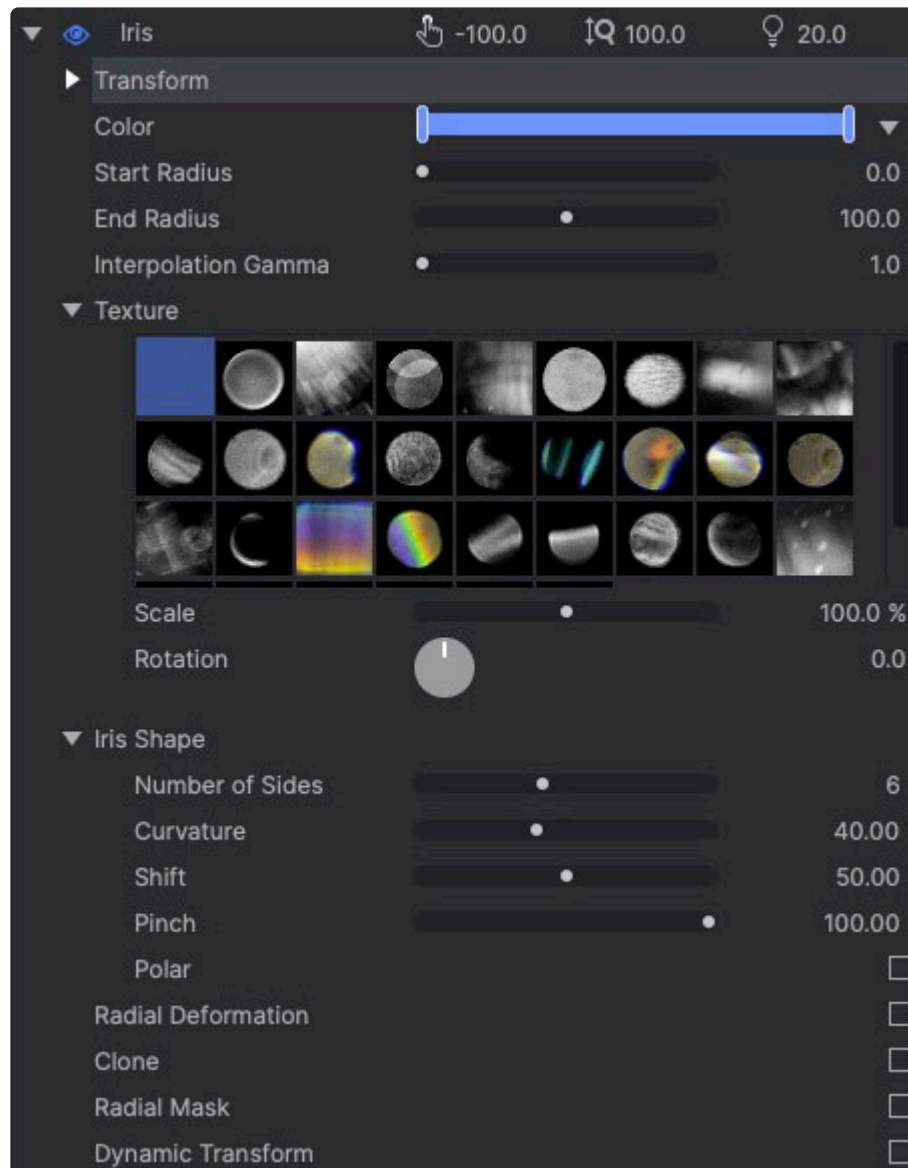
- **Transform:** This section contains all of the transform controls for the spot element.
 - **Blend Mode:** Select the blend mode used to combine the element with the other elements that make up the flare.
 - **Brightness:** Adjusts the brightness of the element.
 - **Saturation:** Adjusts the saturation of the element, in relation to its selected color.
 - **Position:** Specifies the position of the element on the X (horizontal) and Y (vertical) axes.
 - **Anchor:** Allows you to move the element's center of rotation away from the position.
 - **Scale:** Alters the size of the element.
 - **Rotation:** Rotates the element around the anchor point. When the anchor point is offset from the position, changing the rotation will spin the element in a circle with the radius of the position/anchor offset.
 - **Auto Rotate:** Auto rotation allows the rotation of the element to be controlled by the movement of the hot spot.
 - **Off:** Rotation is controlled manually.
 - **Towards Light:** The element automatically rotates toward the hot spot position.
 - **Towards Center:** The element automatically rotates toward the pivot position of the flare.
 - **Offset:** Offsets the anchor point and position from the center line of the effect.
 - **Aspect Ratio:** Defines the width of the element as a percentage of the height.
 - **Scale With:** Determines how the size of the flare is controlled.
 - **Flare Size:** Increasing the Scale of the Flare effect increases the size of the element.
 - **Layer Size:** Increasing the size of the layer to which the flare effect is applied will increase the size of the element.
- **Color:** Choose a color for the selected element. Click the Swatch to open a color picker and choose any color. Use the pipette if you wish to select a color from anywhere in the HitFilm interface. Or manually edit the channel values to mix the color of your preference.

- **Core Brightness:** Adjusts the brightness of the rays. The effect will be more noticeable when the selected color is not pure white.
- **Gamma:** Adjusts the gamma of the element, which has the effect of altering the glow or feather surrounding the rays.
- **Length:** Changes the total length of the rays.
- **Thickness:** Determines how wide the rays are at the center of the effect.
- **Asymmetry:** Allows you to shift the rays so they are longer on one side of the center point than the other.
- **Clone:** Enable this option to create multiple instances of the rays.
 - **Number of Rays:** Defines the number of copies which are created.
 - **Angle Increment:** Select the angle, in degrees, between one set of rays and the next.
 - **Spread:** Weights the rays toward one side, to add asymmetry.
 - **Position Range:** The cloned rays can be set so they do not go through the center of the effect. This property determines the range of offset, and the software will offset each ray by a randomized value within this range.
 - **Randomize:** These controls randomize various aspects of the cloned rays. Enabling this option will reveal a series of additional controls, with which you can set the amount of randomization applied to different properties of the rays.
- **Radial Mask:** A radial mask cuts a radial section out of the element.
 - **Angle:** Defines the size of the masked area, as the angle (in degrees) from the center line to each side of the mask.
 - **Fade:** Feathers the edges of the selection to soften the transition.
 - **Rotation:** Defines the angle of the center line of the radial mask.
 - **Loops:** Specifies how many instances of the mask are present.
 - **Auto Rotate:** Enabling auto rotation causes the mask angle to change as the flare moves.
 - **Off:** No rotation is applied to the radial mask.
 - **Towards Light:** As the flare is moved, the angle of the radial mask rotates to keep it pointed toward the hot spot of the flare.
 - **Towards Center:** As the flare is moved, the angle of the radial mask rotates to keep it pointed toward the center of the flare.
 - **Towards Object:** As the flare is moved, the angle of the radial mask rotates to keep it pointed toward the center of the object to which the flare is applied.
- **Dynamic Transformation:** Dynamic transformation alters the appearance of the element based on its position.
 - **Region:** These controls define how the dynamic transformation is controlled.
 - **Animate From:** Choose the region on which the animation will be based.
 - **Center:** This option applies the transformation based on the element's proximity to the center of the flare.
 - **Border:** This option applies the transformation based on the element's proximity to the edges of the frame.
 - **Light:** This option applies the transformation based on the element's proximity to the hot spot of the flare.
 - **Radius:** Defines the percentage by which the the radius of the element can be altered by the dynamic transformation, as the flare moves.

- **Falloff:** Controls the interpolation of the transformation.
 - **Linear:** Applies the transformation linearly across the animation region.
 - **Smooth:** The animation is smoothed at the extreme ends of the animation region.
 - **Quadratic:** Animation is smoothed more strongly, based on a quadratic curve.
- **Invert:** Inverts the region map, so the element gets smaller rather than larger, as it approaches the selected region.
- **Transform:** These controls determine how the element will be modified as it gets nearer to the selected region.
 - **Source:** Choose the source of movement from which the transformation will be calculated.
 - **Object Position:** Moving the object to which the flare has been applied will alter the transformation.
 - **Light Position:** Moving the hotspot of the flare will alter the transformation.
 - **Brightness:** Determine how much the brightness of the element is affected by its proximity to the selected region.
 - **Scale:** Determine how much the size of the element is affected by its proximity to the selected region.
 - **Radial Mask Angle:** Controls the angle of any radial masks, based on the element's proximity to the selected region.

2.11.3.4. Iris Elements

An Iris element replicates the appearance of the flare reflecting off of an internal lens component, in the shape of the camera's iris. At its most basic, it is a geometric shape, but in practical application this is usually asymmetrically distorted. All controls for customizing an iris element are detailed below.



- **Transform:** This section contains all of the transform controls for the spot element.
 - **Blend Mode:** Select the blend mode used to combine the element with the other elements that make up the flare.
 - **Brightness:** Adjusts the brightness of the element.
 - **Saturation:** Adjusts the saturation of the element, in relation to its selected color.
 - **Position:** Specifies the position of the element on the X (horizontal) and Y (vertical) axes.
 - **Anchor:** Allows you to move the element's center of rotation away from the position.
 - **Scale:** Alters the size of the element.
 - **Rotation:** Rotates the element around the anchor point. When the anchor point is offset from

the position, changing the rotation will spin the element in a circle with the radius of the position/anchor offset.

- **Auto Rotate:** Auto rotation allows the rotation of the element to be controlled by the movement of the hot spot.
 - **Off:** Rotation is controlled manually.
 - **Towards Light:** The element automatically rotates toward the hot spot position.
 - **Towards Center:** The element automatically rotates toward the pivot position of the flare.
- **Offset:** Offsets the anchor point and position from the center line of the effect.
- **Aspect Ratio:** Defines the width of the element as a percentage of the height.
- **Scale With:** Determines how the size of the flare is controlled.
 - **Flare Size:** Increasing the Scale of the Flare effect increases the size of the element.
 - **Layer Size:** Increasing the size of the layer to which the flare effect is applied will increase the size of the element.
- **Color:** The iris element uses a color gradient, allowing you to assign different colors through the range from the element's center to its edge. Use the triangle to the right of the gradient to access preset color gradients. Click on the gradient to add a new handle. Double click any existing gradient handle to edit the color assigned to that point.
- **Start Radius:** The distance from the center at which the element begins. a Value of 0 creates a solid iris, while increasing the start radius creates a hole in the center of the element.
- **End Radius:** Determines the size of the iris, by defining the distance from the center to the outside edge of the element.
- **Interpolate Gamma:** Modifies the transition of brightness from the center of the iris to the outer edge.
- **Texture:** There are many textures built into the custom light flares effect. Click the preview image of any texture to apply that texture to the current element.
 - **Scale:** Changes the size of the texture.
 - **Rotation:** Adjusts the angle of the texture on the element.
- **Iris Shape:** Define the overall shape of the iris element. In real lenses, this is controlled by the physical characteristics of the aperture.
 - **Number of Sides:** Define the geometric shape of the element by the number of sides it has. This corresponds to the number of blades in a camera lens's aperture.
 - **Curvature:** Adjusts the amount of curve present in each side of the iris.
 - **Shift:** Changes the angle of each side, creating a sawtooth effect around the edge of the iris.
 - **Pinch:** Adjusts the curve at each corner of the iris
 - **Polar:** Applies polar distortion to the iris elements, converting them to ellipses radiating outward from the center of the effect.
- **Radial Deformation:** These controls distort the edge of the element, so it is not a perfect circle. This helps to replicate the distortions, imperfections, and inconsistencies created by real lenses. These controls are explained above, under the Spot subheading.
 - **Frequency:** Adjusts the number of points at which the element is deformed. Low numbers give it a blobby appearance, while higher numbers create more of a spiky appearance.
 - **Radius Shift:** Determines the size of the distortions, by defining their depth as a percentage of the radius.
 - **Brightness Shift:** Defines the range of difference in brightness possible from one instance of deformation to the next. This creates radial lines emanating from the center of the element.

- **Radial Gaps:** Adds spacing between the deformations, creating radial gaps in the iris.
- **Seed:** Randomizes the position of the distortions. Each seed value provides a different pattern of distortions.
- **Seed Evolution:** Creates animation in the distortion while the element moves. Higher values increase the speed of the animation.
- **Clone:** Enable this option to create multiple instances of the rays.
 - **Number of Rays:** Defines the number of copies which are created.
 - **Angle Increment:** Select the angle, in degrees, between one set of rays and the next.
 - **Spread:** Weights the rays toward one side, to add asymmetry.
 - **Position Range:** The cloned rays can be set so they do not go through the center of the effect. This property determines the range of offset, and the software will offset each ray by a randomized value within this range.
 - **Randomize:** These controls randomize various aspects of the cloned rays. Enabling this option will reveal a series of additional controls, with which you can set the amount of randomization applied to different properties of the rays.
- **Radial Mask:** A radial mask cuts a radial section out of the element.
 - **Angle:** Defines the size of the masked area, as the angle (in degrees) from the center line to each side of the mask.
 - **Fade:** Feathers the edges of the selection to soften the transition.
 - **Rotation:** Defines the angle of the center line of the radial mask.
 - **Loops:** Specifies how many instances of the mask are present.
 - **Auto Rotate:** Enabling auto rotation causes the mask angle to change as the flare moves.
 - **Off:** No rotation is applied to the radial mask.
 - **Towards Light:** As the flare is moved, the angle of the radial mask rotates to keep it pointed toward the hot spot of the flare.
 - **Towards Center:** As the flare is moved, the angle of the radial mask rotates to keep it pointed toward the center of the flare.
 - **Towards Object:** As the flare is moved, the angle of the radial mask rotates to keep it pointed toward the center of the object to which the flare is applied.
- **Dynamic Transformation:** Dynamic transformation alters the appearance of the element based on its position.
 - **Region:** These controls define how the dynamic transformation is controlled.
 - **Animate From:** Choose the region on which the animation will be based.
 - **Center:** This option applies the transformation based on the element's proximity to the center of the flare.
 - **Border:** This option applies the transformation based on the element's proximity to the edges of the frame.
 - **Light:** This option applies the transformation based on the element's proximity to the hot spot of the flare.
 - **Radius:** Defines the percentage by which the the radius of the element can be altered by the dynamic transformation, as the flare moves.
 - **Falloff:** Controls the interpolation of the transformation.
 - **Linear:** Applies the transformation linearly across the animation region.
 - **Smooth:** The animation is smoothed at the extreme ends of the animation region.

- **Quadratic:** Animation is smoothed more strongly, based on a quadratic curve.
- **Invert:** Inverts the region map, so the element gets smaller rather than larger, as it approaches the selected region.
- **Transform:** These controls determine how the element will be modified as it gets nearer to the selected region.
 - **Source:** Choose the source of movement from which the transformation will be calculated.
 - **Object Position:** Moving the object to which the flare has been applied will alter the transformation.
 - **Light Position:** Moving the hotspot of the flare will alter the transformation.
 - **Brightness:** Determine how much the brightness of the element is affected by its proximity to the selected region.
 - **Scale:** Determine how much the size of the element is affected by its proximity to the selected region.
 - **Radial Mask Angle:** Controls the angle of any radial masks, based on the element's proximity to the selected region.

2.11.4. Gleam

Creates the impression of rays of light shining out from a central point. The general appearance of the rays is determined by the effect properties, rather than by its interaction with the layer itself. In this respect it differs from the Light rays effect. The appearance of the rays can be heavily customized.



- **Ray Length:** Adjust the length of the rays created by the effect.
- **Intensity:** Modifies the overall brightness of the rays.
- **Minimum Value:** Specifies the lowest luminance value which will generate rays. Any tones darker than the chosen value will be ignored by the effect.
- **Maximum Value:** Specifies the highest luminance value which will generate rays. Any tones brighter than the chosen value will be ignored by the effect.
- **Quality:** Adjusts the balance of speed and image quality. Higher values will create superior results, but will take longer to process.
- **Blend:** Select the blend mode used to composite the gleam effect onto the original contents of the layer.

Position

- **Center:** Defines the location of the point from which the rays originate, on the X axis (horizontal) and Y axis (vertical). When the Use Layer option (below) is used, this position value serves as an offset from the position of the selected layer.
- **Use Layer:** Select any other layer on the timeline to use its position as the origin of the gleam rays. When a layer is selected, the Position property below functions as an offset from the selected layer's position.

Colorize

By default the rays will take their color from the layer to which they are applied. You can also introduce a specific color of your choice into the effect.

- **Enable:** Enabling this option overrides the layer color and creates the rays using the color you choose.
- **Color:** Choose a color to be applied to the rays. You can use the eyedropper to choose a color from the layer, or click the swatch to open a color picker and choose any color you prefer. You can also manually enter the color values for the red, green, and blue channels.

2.11.5. Glow

Adds a glowing aura to bright areas of the layer.

Per Channel Intensity properties enable you to shift the glow color.

Advanced options provide further customization of the glow's appearance, including creating a specific color gradient.



2.11.6. Inner Glow

Creates a soft glow effects around the inside of your layer, with full control over the size and color of the glow effect. The glow is a gradient that transitions from its most opaque at the edge of the layer, to complete transparency inside the layer, at the distance set by the width control.

- **Color:** Select the color you want to apply to the glow.
 - **Values:** You can enter new RGB values for a specific color.
 - **Pipette:** Use the pipette to select a color from within your frame. Click on the pipette, hold the mouse button down, and drag to the color you wish to select. Release the mouse button to select the color.
 - **Color Swatch:** Click the color swatch to open a color picker and choose any color you wish.
- **Opacity:** Defines the amount of the glow, from completely transparent at 0.00 to fully opaque at 1.00.
- **Size:** Adjusts the width of the glow, in pixels.
- **Spread:** Shifts the mid-point of the gradient, to make it more solid or more subtle. Increasing the value shifts the mid point closer to the center of the layer, giving the glow more body.
- **Offset:** By default the glow is centered on the layer. Use offset to shift it on the X (horizontal) or Y (vertical) axis.

2.11.7. Light Flares

Generates a wide variety of realistic lens flares and lights. Each flare type can be heavily customized to create a limitless variety of alternatives.

Flares are made up of a hotspot, rays and unique tertiary elements. Each part can be adjusted individually.

The positioning of a flare is determined by its **hotspot** and its **pivot**. The pivot point is used for automatically animating the rays and additional elements, while the hotspot is used for the position of the main flare itself.

Below are two examples of light flares, both created starting with the **chromatic halo** type to show the level of possible customization:



2.11.8. Light Leak

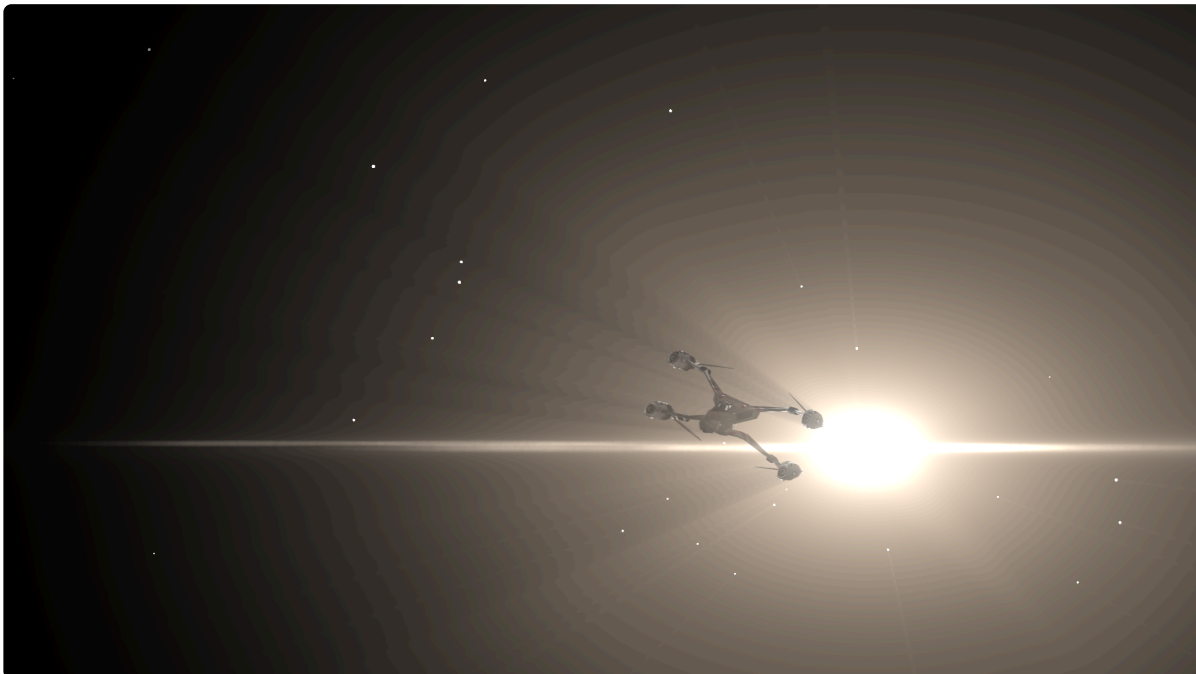
Generates an evolving pattern of color gradients, simulating unwanted light leaking into the camera during shooting.

2.11.9. Light Rays

Though similar in immediate appearance to Glean, **Light Rays** generates a more realistic illusion of light emitting from a central point.

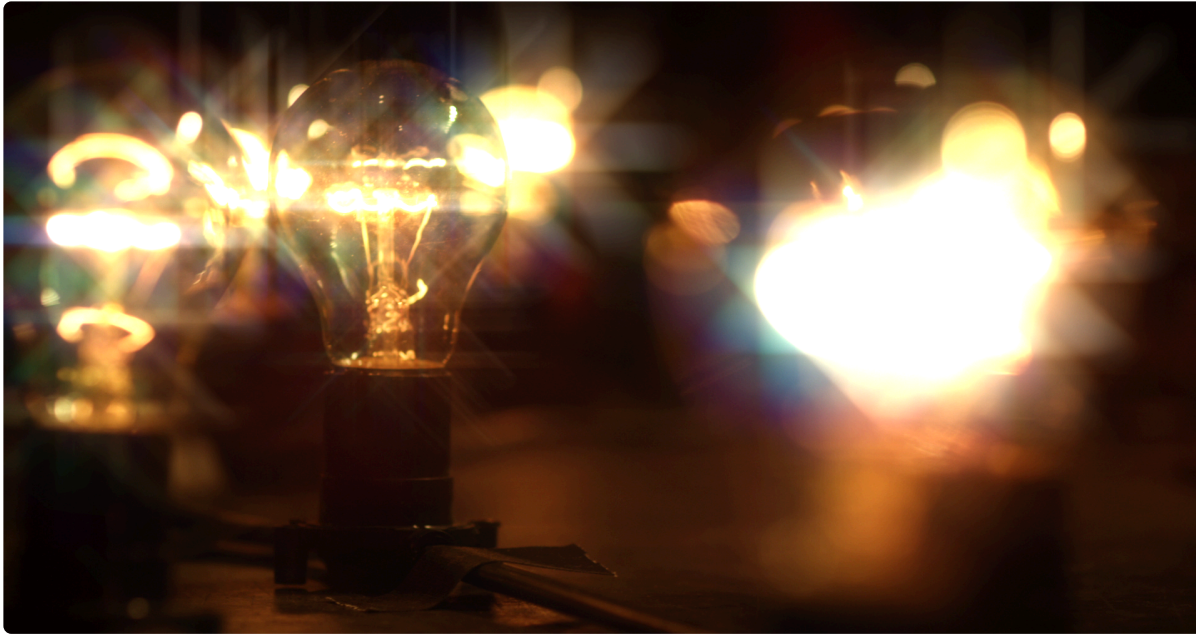


Used in conjunction with a 3D point, light rays can be used to create realistic volumetric lighting effects as in this 3D model shot:



2.11.10. Light Streaks

Creates a range of light streaks based on the source layer. Ideal for creating the kind of lens aberrations caused by anamorphic lenses.



2.11.11. Neon Glow

Creates a glowing edge around a layer's alpha channel. This is particularly useful for effects such as lasers and lightsabers.



2.11.12. Outer Glow

Creates a soft glow effects around the outside of your layer, with full control over the size and color of the glow effect. The glow is a gradient that transitions from its most opaque at the edge of the layer, to complete transparency farther outside the layer, at the distance set by the width control.

- **Color:** Select the color you want to apply to the glow.
 - **Values:** You can enter new RGB values for a specific color.
 - **Pipette:** Use the pipette to select a color from within your frame. Click on the pipette, hold the mouse button down, and drag to the color you wish to select. Release the mouse button to select the color.
 - **Color Swatch:** Click the color swatch to open a color picker and choose any color you wish.
- **Opacity:** Defines the amount of the glow, from completely transparent at 0.00 to fully opaque at 1.00.
- **Size:** Adjusts the width of the glow, in pixels.
- **Spread:** Shifts the mid-point of the gradient, to make it more solid or more subtle. Increasing the value shifts the mid point farther outside of the layer, giving the glow more body.
- **Offset:** By default the glow is centered on the layer. Use offset to shift it on the X (horizontal) or Y (vertical) axis.

2.11.13. Super Glow

Super Glow adds an effect similar to Glow, but with more ways to control individual aspects of the effect, and with a more natural and nuanced result.



- **Radius:** Adjusts the overall size of the glow effect.
- **Power:** Adjusts the glow intensity.
- **Exposure:** Adjusts the brightness of the glow element using exposure value.
- **Spread:** Shifts the mid-point of the gradient, to alter the size of the hot spot at the core of the glow. Increasing the value gives the hot spot of the glow more body.
- **Threshold:** Adjusts the brightness threshold on which the effect is based. Only pixels with a value above your Threshold setting will generate a glow.
- **Threshold Smooth:** Softens the selection around the threshold value. Choose a higher value to feather the edges of the selection, allowing for a more natural look.
- **Clamp to Edge:** Enable this parameter to adjust how the glow behaves when intersecting with one of the edges of the clip. Enabling this option ensures the effect behaves consistently right to the edges of the clip or layer.

Style

- **Tint:** Select a color to blend into the glow effect. You can use the eyedropper to choose a color from the viewer, or click the swatch to open a color picker and choose any color you prefer. You can also manually enter the color values for the red, green, and blue channels.
- **Tint Amount:** Controls how much of the Tint color is blended into the glow result. By default the glow color is taken from the layer to which it is applied. Increasing the Tint Amount shifts that color

toward the Tint color you have selected.

- **Aspect X:** Adjusts the horizontal size of the glow.
- **Aspect Y:** Adjusts the vertical size of the glow.
- **Blend Mode:** Choose a blend mode from the menu to control how the blur is blended onto the clip. **Screen** provides a more subtle result, while **Add** creates a more intense glow.

Hotspots

The Hotspots controls allow you to alter the appearance of the glow in the brightest areas of the image.

- **Horizontal:** These controls alter the hotspots of the glow on the horizontal (left to right) axis.
 - **Size:** Adjusts the size of the hotspots along the horizontal axis.
 - **Softness:** Adjusts the relative softness of the hotspots along the horizontal axis.
 - **Power:** Adjust the intensity of the hotspots along the horizontal axis.
 - **Threshold:** Adjusts the brightness threshold on which the hotspots are based. Only pixels with a value above your selected Threshold value will generate a glow.
 - **Threshold Smooth:** Softens the selection around the threshold value. Choose a higher value to feather the edges of the selection, allowing for a more natural look.
- **Vertical:** These controls alter the hotspots of the glow on the vertical (top to bottom) axis.
 - **Size:** Adjusts the size of the hotspot along the vertical axis.
 - **Softness:** Adjusts the relative softness of the hotspots along the vertical axis.
 - **Power:** Adjust the intensity of the hotspots along the vertical axis.
 - **Threshold:** Adjusts the brightness threshold on which the hotspots are based. Only pixels with a value above your selected Threshold value will generate a glow.
 - **Threshold Smooth:** Softens the selection around the threshold value. Choose a higher value to feather the edges of the selection, allowing for a more natural look.

Chromatic Aberration

- **Enabled:** Chromatic aberration is an offset of the color channels within an image, which sometimes occurs due to imperfections in camera optics, and which presents as colored fringing around edges within the frame. Enabling it can help add a more organic realism to the glow results by introducing imperfections into the effect.
- **Distance:** Adjust the offset of the chromatic aberration, controlling the size of the color fringe.
- **Strength:** Adjust the intensity of the chromatic aberration.
- **Angle:** Adjust the angle at which the chromatic aberration is offset from the source image.
- **Channels:** Use the menu to select which color channels are offset to create the chromatic aberration.
 - **Red and Blue:** The red channel is offset at the angle you specified above, and the blue channel is offset in the opposite direction.
 - **Red and Green:** The red channel is offset at the angle you specified above, and the green channel is offset in the opposite direction.
 - **Green and Blue:** The green channel is offset at the angle you specified above, and the blue channel is offset in the opposite direction.

Grain

- **Enabled:** Toggles the grain on or off. Adding grain to the glow can help blend it more naturally with your footage, by introducing subtle imperfections and variation.
- **Size:** Adjusts the size of the grain.
- **Strength:** Adjusts the intensity of the grain.
- **Monochrome:** Enable this option to remove all color from the grain, switching the grain to black and white.
- **Seed:** Randomizes the grain effect. Each seed value provides a unique grain pattern.

2.12. Matte Enhancement

After keying a layer you may need to perform further adjustments to achieve high quality results. The matte enhancement effects are designed for this purpose. Each effect has its own page where you can find full details for the effect and its controls.

- [Alpha Brightness & Contrast](#)
- [Crush Blacks & Whites Alpha](#)
- [Erode White](#)
- [Invert Alpha](#)
- [Light Wrap](#)
- [Matte Cleaner](#)
- [Remove Color Matting](#)
- [Set Matte](#)
- [Spill Removal](#)

2.12.1. Alpha Brightness & Contrast

The brightness and contrast of a layer's alpha channel can be adjusted to tweak the edges of a composite.

- **Brightness:** Adjust to the left to decrease brightness, or to the right to increase brightness of the alpha channel. Remember that in the alpha channel, black is completely transparent, and white is completely opaque, so the visible results in the viewer alter what parts of the layer are visible, rather than the actual tonal values of the image.
- **Contrast:** Adjust to the left to decrease contrast, or to the right to increase contrast of the alpha channel. Remember that in the alpha channel, black is completely transparent, and white is completely opaque, so the visible results in the viewer alter what parts of the layer are visible, rather than the actual tonal values of the image.

2.12.2. Crush Blacks & Whites Alpha

Similar to the normal Crush Blacks & Whites effect, but only affects the alpha channel. Crushing the blacks can remove lingering areas of your keyed area, while clamping the white can help to fill transparent areas in your subject.

- **Black:** Increasing this slider will raise the threshold below which shadow areas will be pushed into pure black, ensuring they are completely transparent.
- **White:** Decreasing this slider lowers the threshold above which highlights will be pushed into pure white, ensuring they are completely opaque.

2.12.3. Erode White

The erode effect shifts the edge of a layer's alpha channel inward, reducing the white area of the matte.

- **Choke:** Sets the distance, in pixels, by which the edge of the white area will be moved inward.
- **View Matte:** Enable this option to view the transparency matte as a greyscale image. Disable it to view the original image with the transparency applied.

2.12.4. Invert Alpha

Inverts the layer's alpha channel. There are no controls for this effect.

2.12.5. Light Wrap

Light wrap allows the brightness of a selected layer to brighten the edges of the keyed layer. You can often improve composites using light wrap, which enables light from another layer to bleed onto the keyed layer. This helps to realistically embed the keyed subject into the surrounding scene, since the edges of the keyed layer are modified based on the specific brightness/color of the pixels behind them.



If you have transformed or added effects to the light wrap source layer, you will need to convert it to an embedded composite shot for the light wrap to take those changes into account.

- **Source Layer:** Choose the layer used to generate the light wrap.
- **Radius:** Defines the distance, in pixels, to which the light wrap will reach into the keyed layer. The effect is feathered within this distance, so the effect will be strongest at the edge of the keyed layer, and fade as it reaches farther into the layer.
- **Opacity:** Adjust the overall intensity of the light wrap. 1.00 gives the strongest results, while 0.00 makes the effect completely transparent.
- **Blend:** Select the blend mode used to apply the light wrap onto the keyed layer. The most commonly used settings are:
 - **Lighten:** The default setting, which works best in the majority of cases. Only areas where the background layer is lighter than the keyed layer will have any effect.
 - **Screen:** For very bright backgrounds, using screen can be helpful for transferring that brightness onto the edges of the keyed layer.
 - **Soft Light:** When working with very dark backgrounds, this option can help to softly darken the edges of the keyed layer, and create a more convincing composite.

2.12.6. Matte Cleaner

You can use the matte cleaner to refine the results of a keying effect. The matte, which defines the transparent areas created by the key, can be modified with these controls to improve the results.

- **Smooth:** Makes the edge of the matte smoother. Any corners or abrupt changes in direction of the matte edge are rounded, using the radius (in pixels) which you specify.
- **Feather:** Makes the edge of the key softer. A gradient of transparency is applied to the edge of the matte, to a width (in pixels), which you specify.
- **Choke:** Shrinks the edge of the key. This value sets the distance, in pixels, by which the edge of the white area will be moved inward, reducing the white area of the matte.
- **View Matte:** Enable this option to view the transparency matte as a greyscale image. Disable it to view the original image with the transparency applied.

2.12.7. Remove Color Matting

When using stock footage, this effect can be used to reduce dark areas in the composited element. This tool is most effective when used after stock has been composited using the [channel swapper](#).

- **Background Color:** Choose the color of the background contained in the stock. The selected color will be removed from the layer. You can use the eyedropper to choose a color from the layer, or click the swatch to open a color picker and choose any color you prefer. You can also manually enter the color values for the red, green, and blue channels.

2.12.8. Set Matte

A Matte is a greyscale image which serves as a transparency map, with white areas being opaque and black areas being transparent. The Set Matte effect enables you to use channels from another layer as a matte, to define the transparency of the current layer. This can be particularly useful if you want to use the alpha channel from another layer.

- **Source Layer:** Choose the layer from which the matte will be obtained.
- **Matte Source:** Select the channel of the source layer, to use the contents of that channel to generate the matte.
 - **Red:** Uses the red color channel of the source image to define transparency. The higher the red value in each pixel, the more opaque that pixel will be.
 - **Green:** Uses the green color channel of the source image to define transparency. The higher the green value in each pixel, the more opaque that pixel will be.
 - **Blue:** Uses the blue color channel of the source image to define transparency. The higher the blue value in each pixel, the more opaque that pixel will be.
 - **Alpha:** Applies the alpha channel of the source layer directly to the current layer. The current layer will only be visible where the source layer is visible.
 - **Luminance:** Uses the luminance values of the source layer to define transparency. The higher the luminance value for each pixel, the more opaque that pixel will be.
 - **Hue:**
 - **Lightness:** Uses the lightness values of the source layer to define transparency. The lighter a pixel is, the more opaque that pixel will be.
 - **Saturation:** Uses the saturation values of the source layer to define transparency. The more saturated a pixel is, the more opaque that pixel will be.
 - **Full:**
 - **Off:** Disables the effect, turning off the matte. This is primarily useful for toggling the set matte effect on and off over the course of the current layer's duration.
- **Blend:** Select how the matte from the source layer is blended with the current layer.
 - **Add:** The source matte is added to the current layer's matte. All visible areas of the current layer will remain visible, and visible areas of the source matte will also be visible.
 - **Subtract:** The source matte is subtracted from the current layer's matte. All transparent areas of the current layer will remain transparent, and transparent areas of the source matte will also become transparent.
 - **Replace:** The current layer's matte will be disregarded, and the source layer's matte will be used in its place.
- **Invert:** Reverses the matte, so transparent areas become opaque, and opaque areas become transparent.

2.12.9. Spill Removal

When working with green screen and blue screen you can sometimes find slight color fringing around the edge of a key after the colored background has been removed. This is called color spill, and is caused by the background color blending with the subject color. Where this occurs, the pixels are not green enough to be included in the key. The Spill Removal effect removes or reduces this color fringing, by identifying areas with relatively high green values (or blue values when working with blue screen), and removing the green (or blue) in those areas.

- **Screen Color:** Select the color of the background used in the source video. **Red**, **Green**, or **Blue** can be selected.
- **Strength:** Adjusts the intensity of the effect. Higher values remove more of the selected color.
- **Suppression Type:** Choose the type of suppression used to remove the color. The main difference is how the hues near the selected color are affected.
 - **Standard:** Removes a smaller range of colors, which can help to retain accurate color in your image in some cases. Particularly if you are green screening a subject which contains bright yellows, this option is useful.
 - **Extended:** The default option, which affects the largest range of colors. This gives the best results in most cases, but if you find that the colors of your subject are being altered, try switching to Standard to see if it gives better color accuracy.

2.13. Particles & Simulation

Each effect in this category has its own page, where you can find complete details of the effect and its controls.

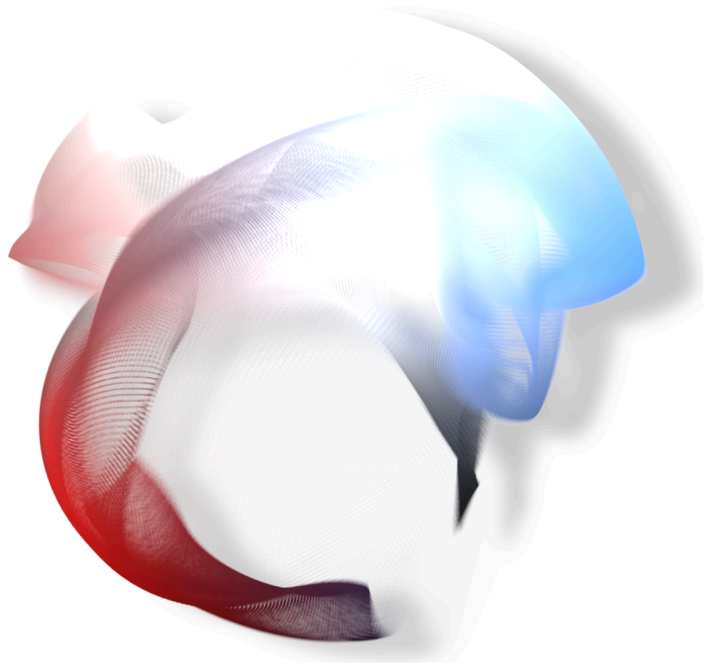
- [Atomic Particles](#) – 3D, array-based particle system with audio integration.
- [Blood Spray](#) – Splatter simulation.
- [Fire](#) – Realistic flame simulation.
- [Gunfire](#) – 3D muzzle flash generator.
- [Lightning & Electricity](#) – Realistic electrical animation.
- [Rain On Glass](#) – Realistically simulate raindrops moving across a pane of glass.
- [Shatter](#) – Break a layer into 3D chunks.

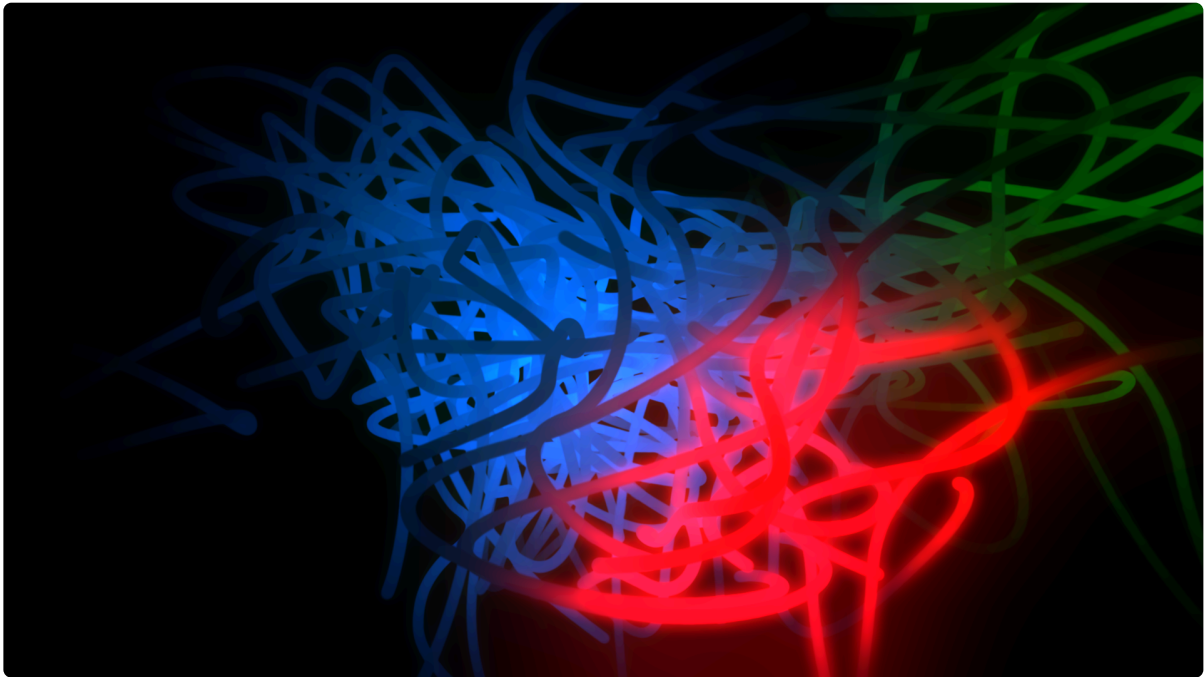
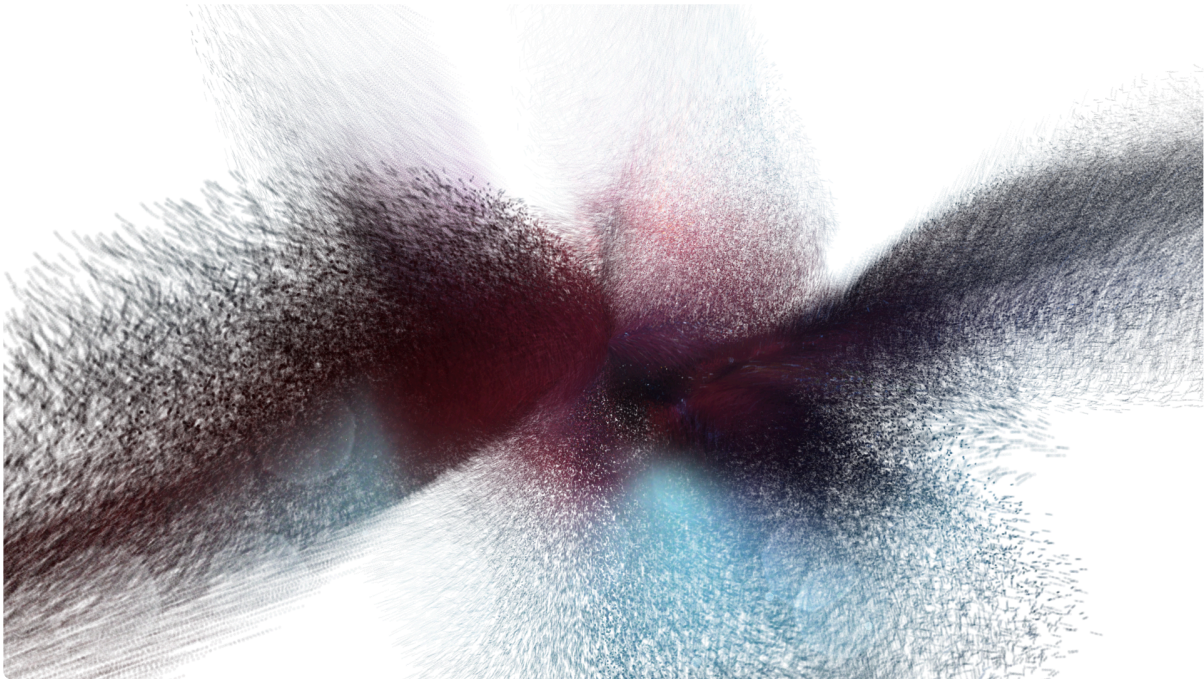
2.13.1. Atomic Particles

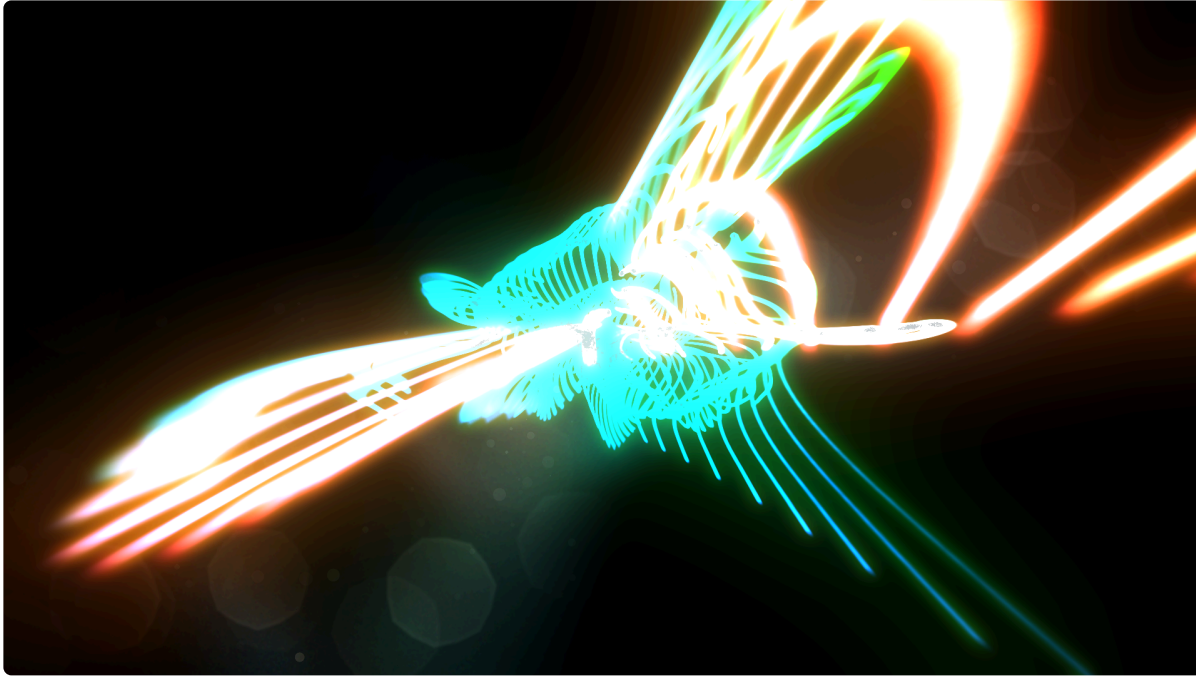
Atomic Particles are array-based, which means they use regimented grids of particles. Although applied as a 2D effect, atomic particles are simulated in 3D and can be rotated around using a 3D camera. They also interact with HitFilm's 3D lighting system.

Examples of atomic particles

There are countless uses for atomic particles effects. Below are a few simple examples, all created very quickly and easily:







Particle placement

This property group determines the initial positioning and layout of the particle grid that forms the foundation of any atomic particle effect.

3D model render mode

If atomic is applied to a 3D model layer this option becomes available.

Screen space applies atomic to the 3D model as if it were a 2D layer, simply atomizing the rendered, flattened frame.

Project texture atomizes the 3D model according to its 3D geometry. This mode ‘bakes in’ lighting into the atomized version.

Model textures atomizes the 3D model according to its 3D geometry. It uses the 3D model’s source textures, prior to the model being illuminated in the scene.

Position & rotation

The position properties determine the location in 3D space of the particle grid.

For greater control the particle grid can be linked to another layer in the composite shot, including a 3D point layer.

Atomic and 3D cameras

Atomic particles is a 2D effect, although it generates 3D rendered content. It can be adjusted to exist in 3D space using this technique:

1. Create a new point layer.
2. Set the point layer's **dimension** to 3D.
3. Apply the Atomic particles effect to a layer and explore the **Particle placement** -> **Position** property group.
4. Set the **Transform From** option to link to the point layer created in step 1.

The atomic particles will inherit 3D position data from the point layer. 3D cameras can then be moved in and around the atomic particle cloud in 3D.

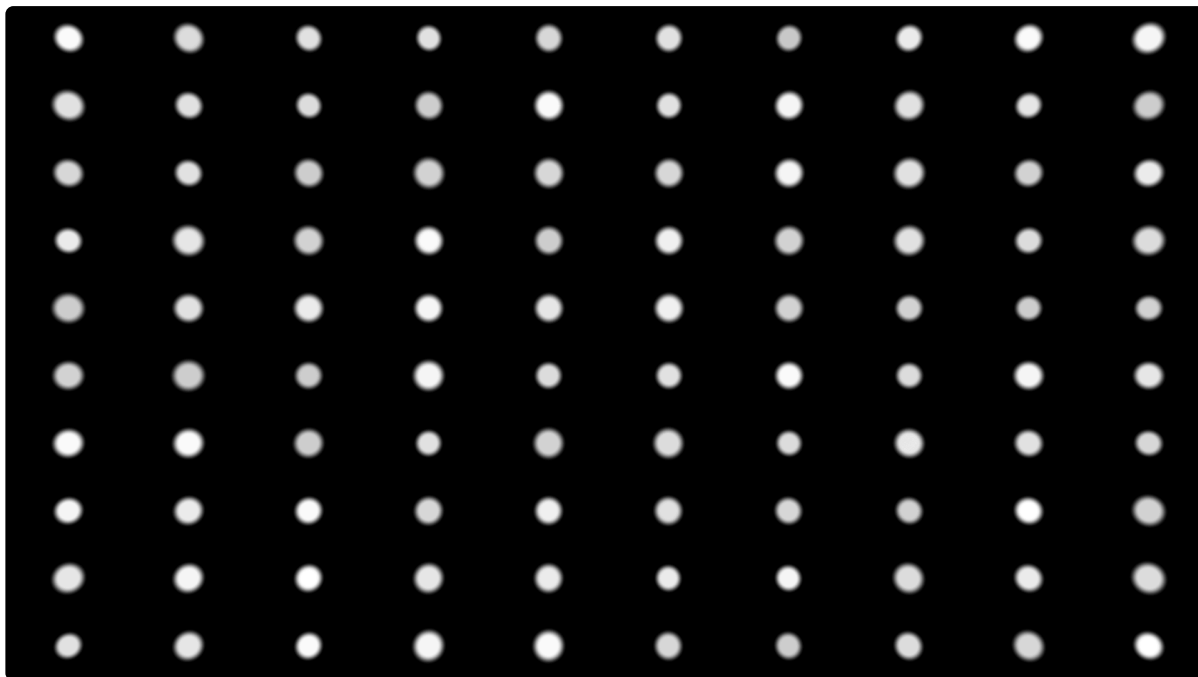
Number of particles

The particle grid can be adjusted to have more or less individual particles. The particle grid is made up of multiple layers (Z) of horizontal (X) and vertical particles (Y).

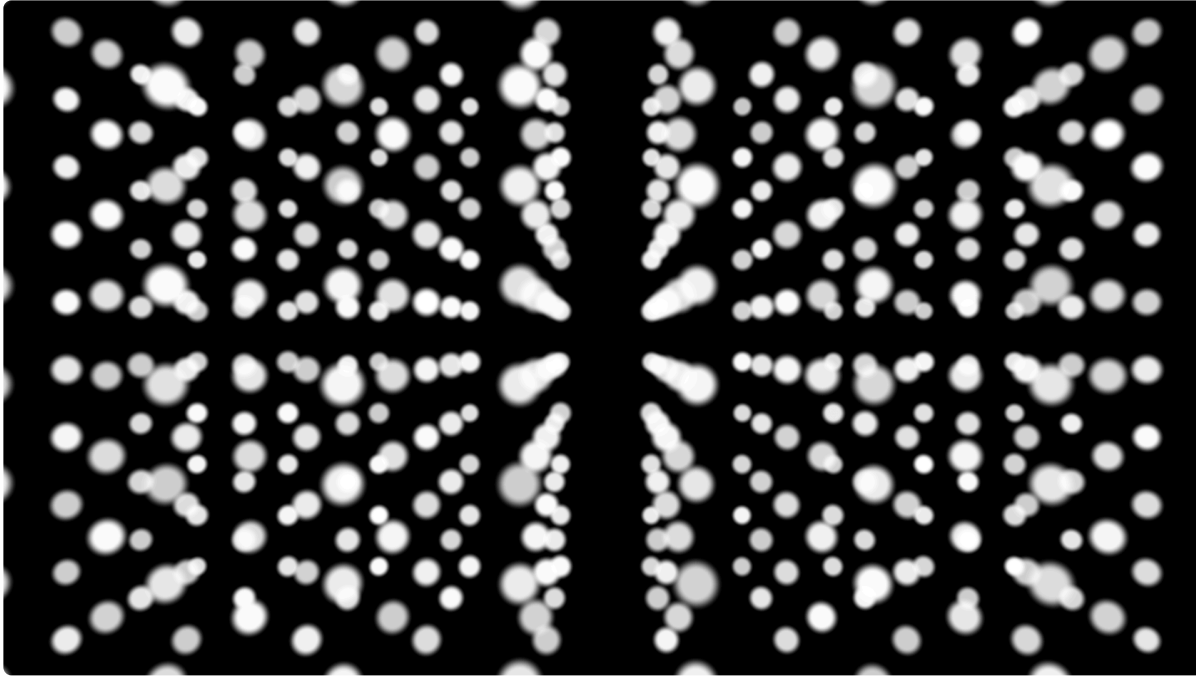


When first using atomic particles it can be easier to understand the system by reducing the X and Y values so that you can easily make out the individual particles.

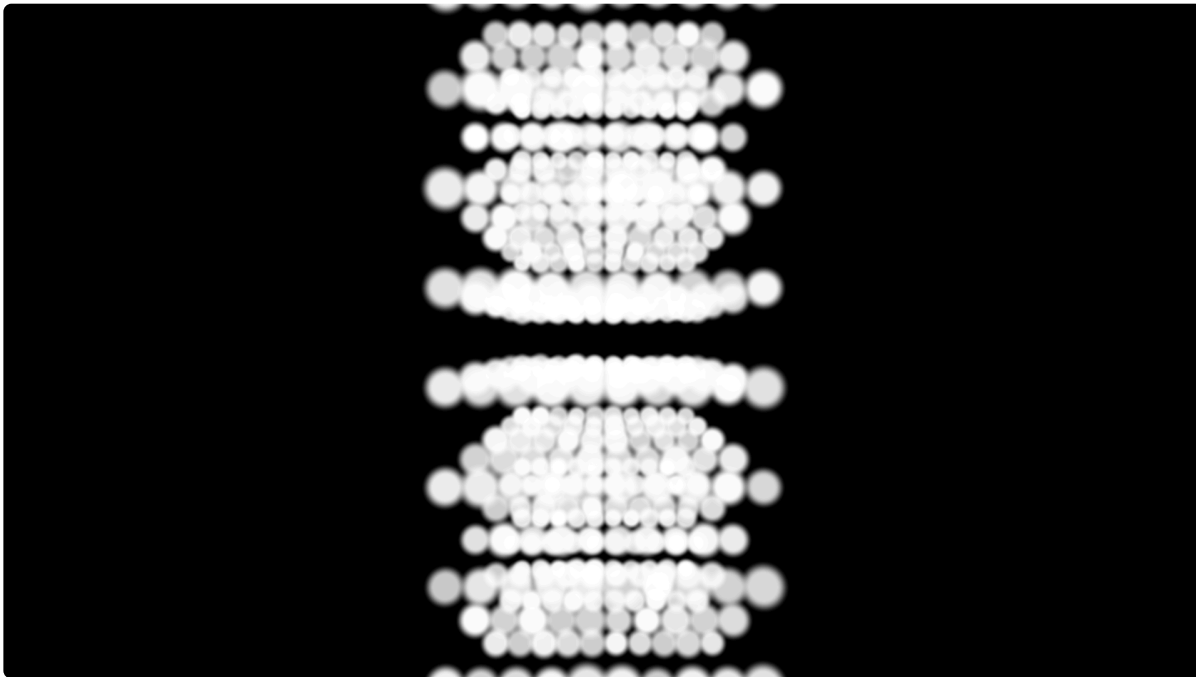
This is a particle grid of 10×10×1:



Increasing the number of Z layers to 5 gives depth to the particle grid:



The spread of particles can be adjusted using the **scale** properties, to make particles closer together or farther apart:



The **twist** property spins each vertical column of particles, creating a corkscrew appearance:

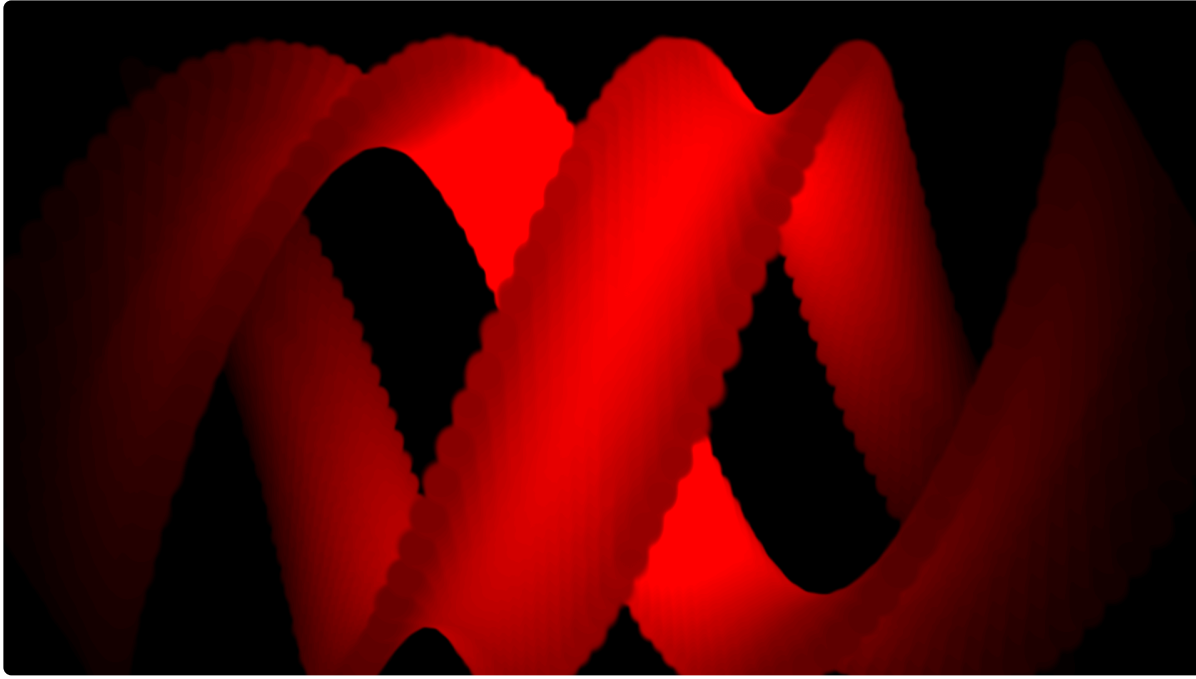


Depth sort changes the accuracy of the particle rendering. Turned off the rendering is fastest, but particles may not be represented accurately in 3D space.

Here is an example effect without depth sorting:



Here is the same effect with depth sorting **on**:



The second example shows a much more accurate representation of the particles in 3D space. Note the crossover point of the two strands at the top-left of the image and the peak of the curve at the top right, both of which are more accurately rendered with depth sorting on.

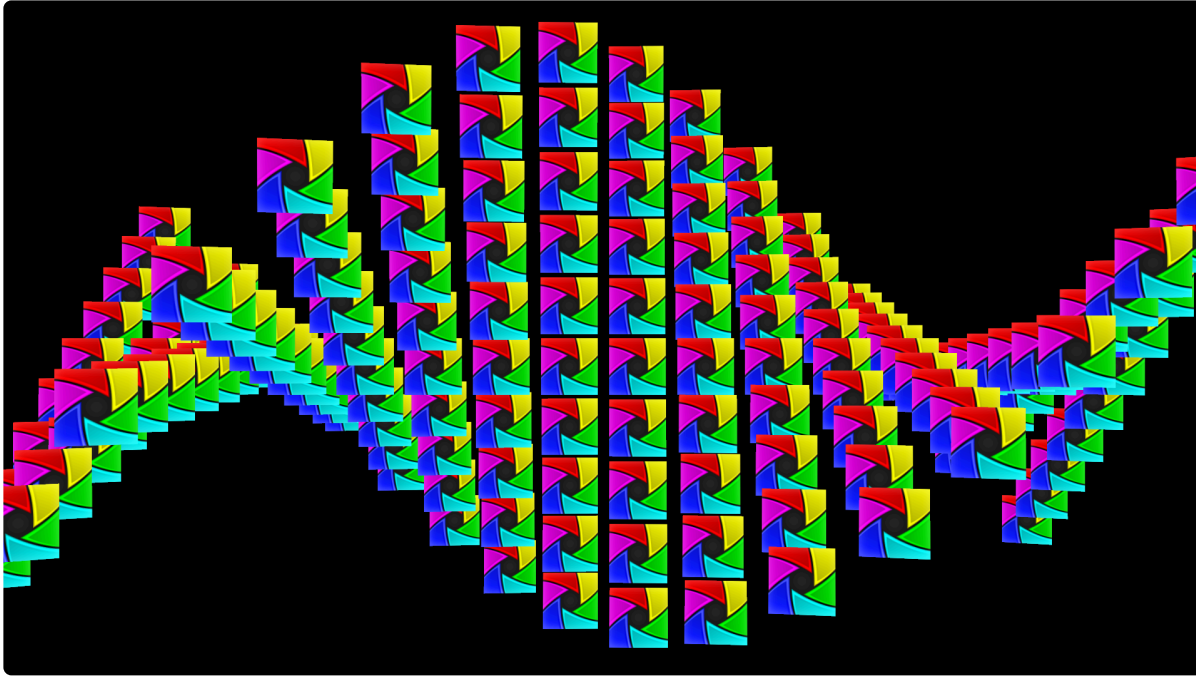
Turning depth sort to on can slow down rendering times.

Particle appearance

The appearance properties determine the **size**, **shape** and **opacity** of the particles.

The **shape** menu can be used to change the particle shape to that of another layer, which is defined in the **source** menu.

This can be used to create a grid of particles using a product logo, for example:

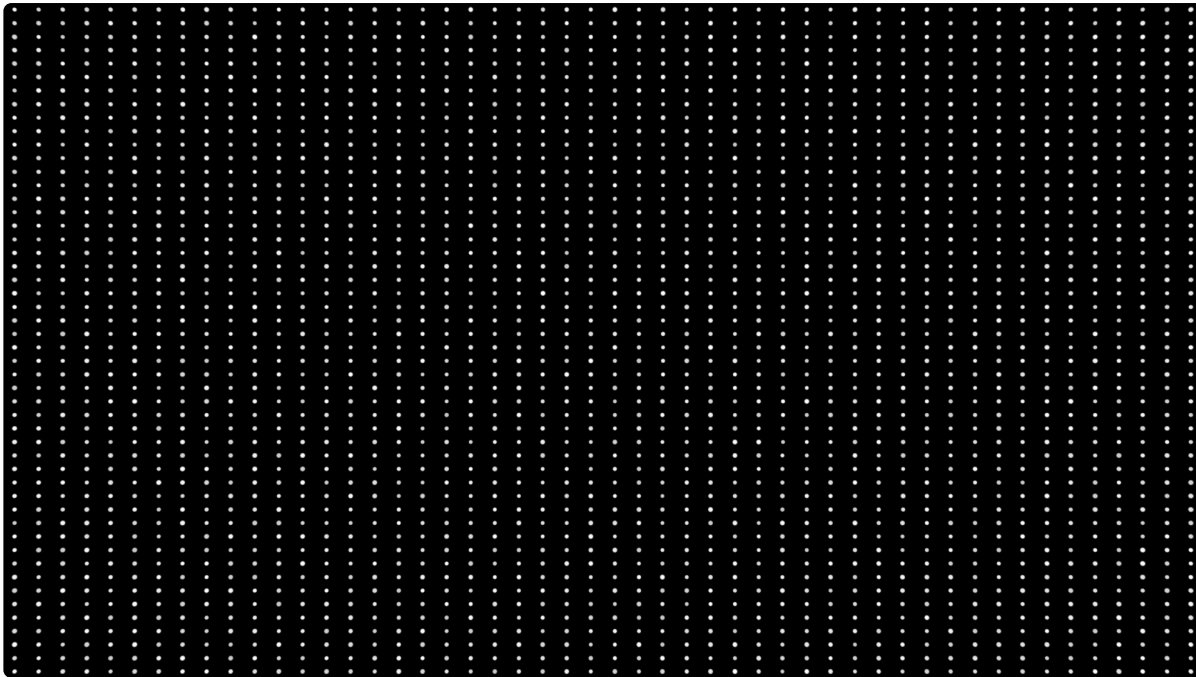


Embedded composite shots can also be used as particle shapes, enabling the use of animated shapes.

Disperse

Dispersing particles randomizes the position of the particles.

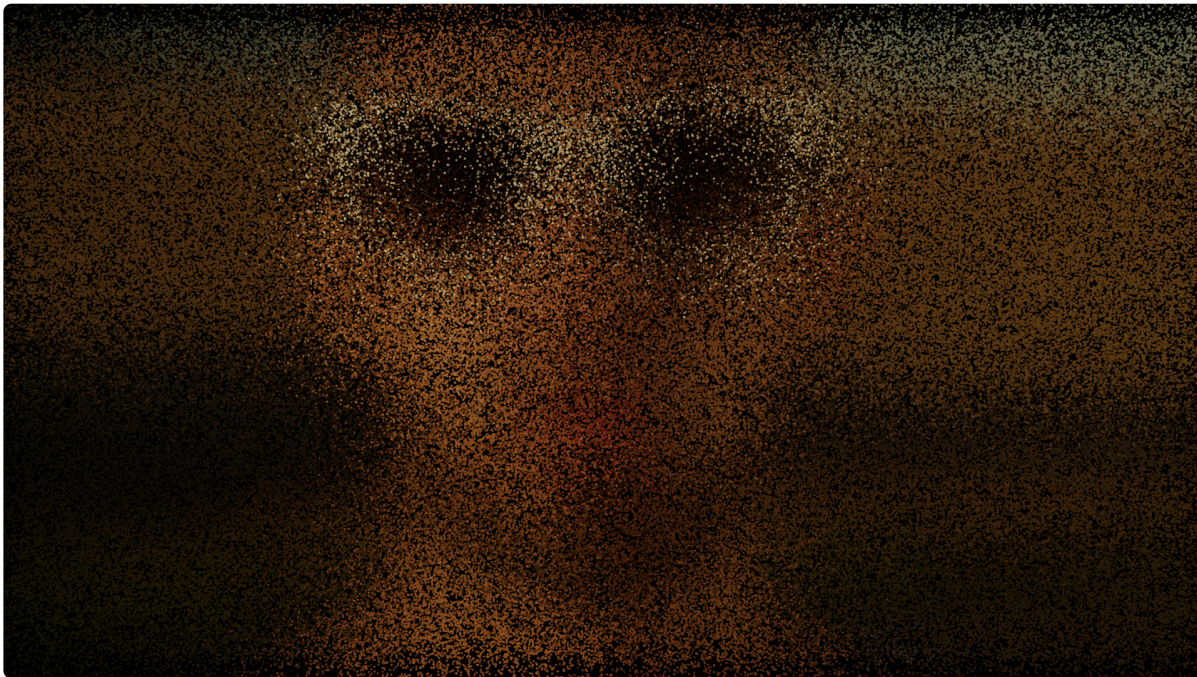
Here is a particle grid with no dispersal:



Here is the same effect with an increase **dispersal amount**:



This can have interesting effects when applied to video or image layers:

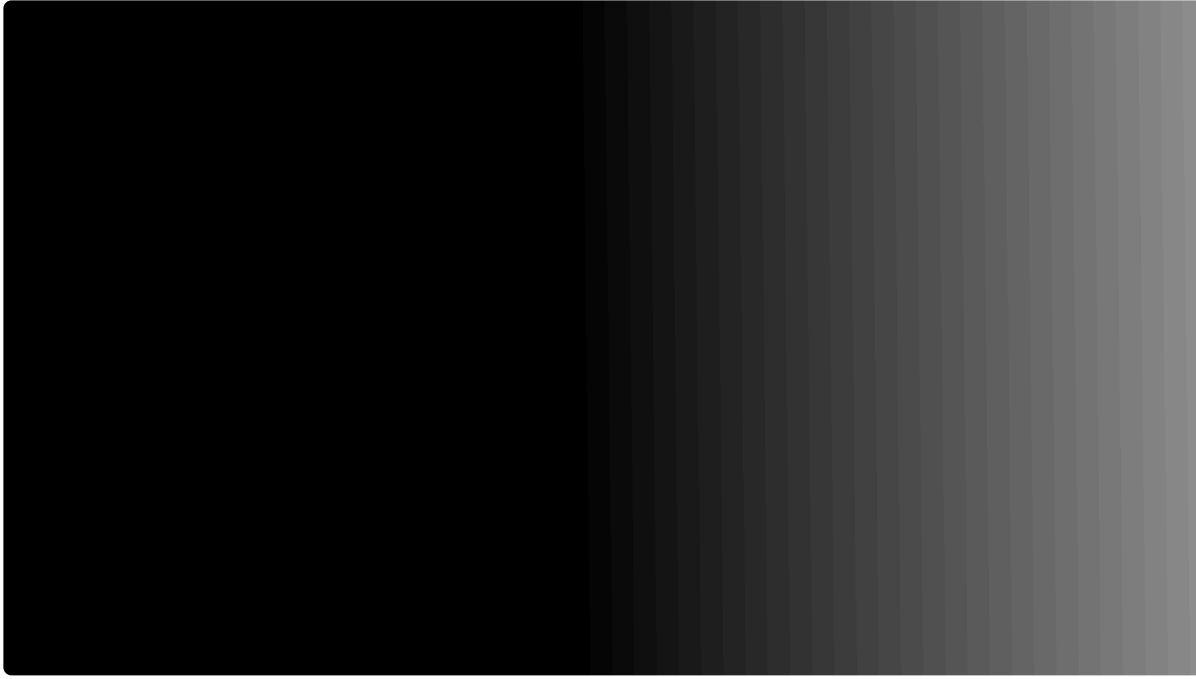


Layer

By default the dispersal happens uniformly across the layer.

The **layer** option can be used to alter the strength of the dispersal by location.

Applying this gradient layer:



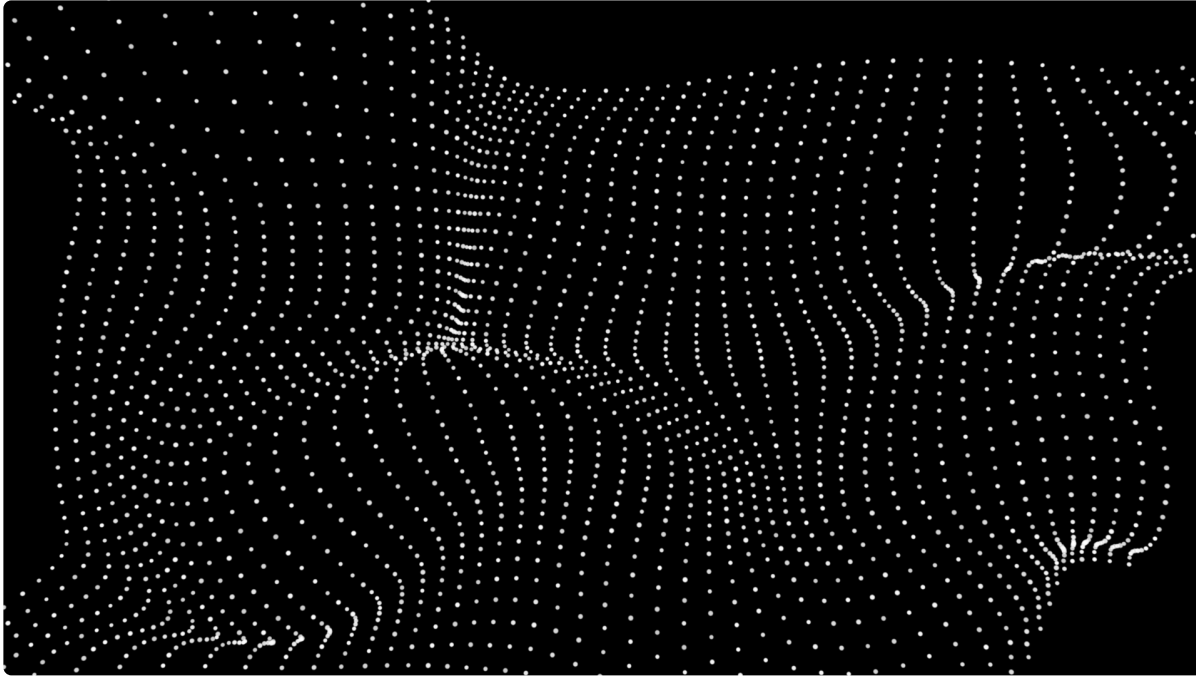
Results in the dispersal being most prominent towards the bright side of the gradient:



Fractal

Warping the atomic grid using the fractal controls creates organic shapes and introduces animation.

Displace alters the atomic grid to produce a folded result, best imagined as undulating cloth:



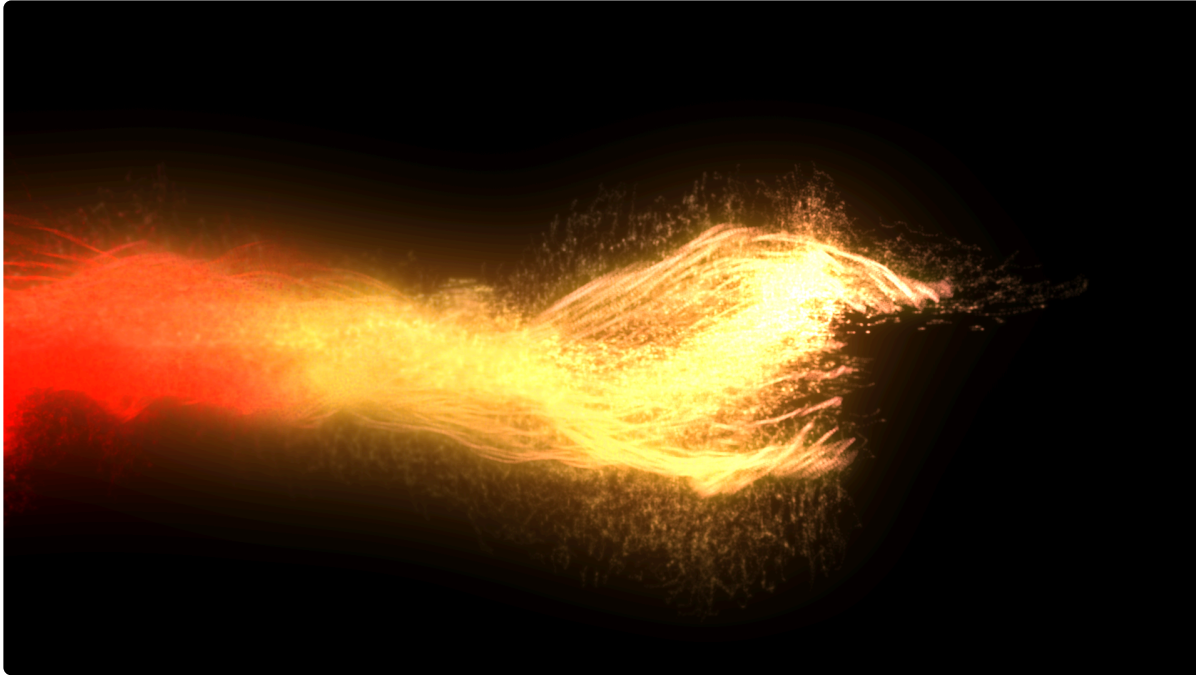
Disperse and **size** work similarly to the standard dispersal and size properties but also create fractal animation, retaining the sense of a connected grid.

The **wavelength** and **iterations** properties determine the strength of the overall fractal warp. A higher **wavelength** will result in a more uniform, less detailed transformation. Low **iterations** will create smoother patterns, with higher iterations creating noisier results.

The **speed** of the fractal animation can be adjusted.

Flow

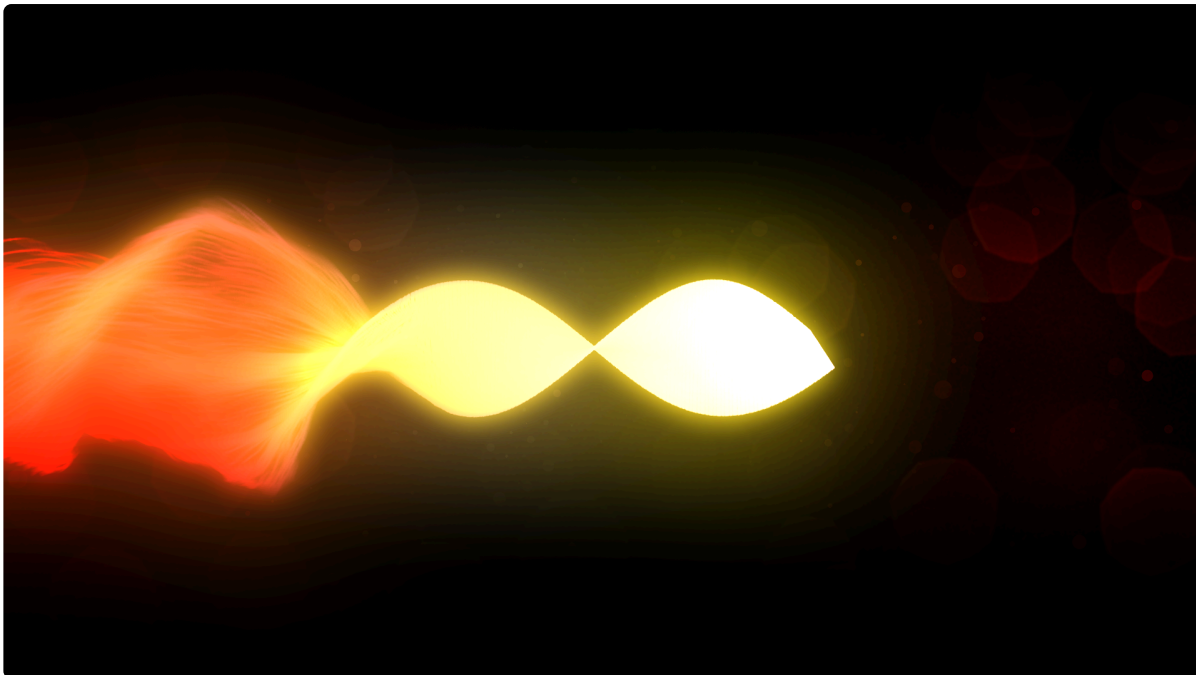
Adjusting the flow will give the impression that the particles are moving in a particular direction. This is most evident with larger numbers of particles:



Layer

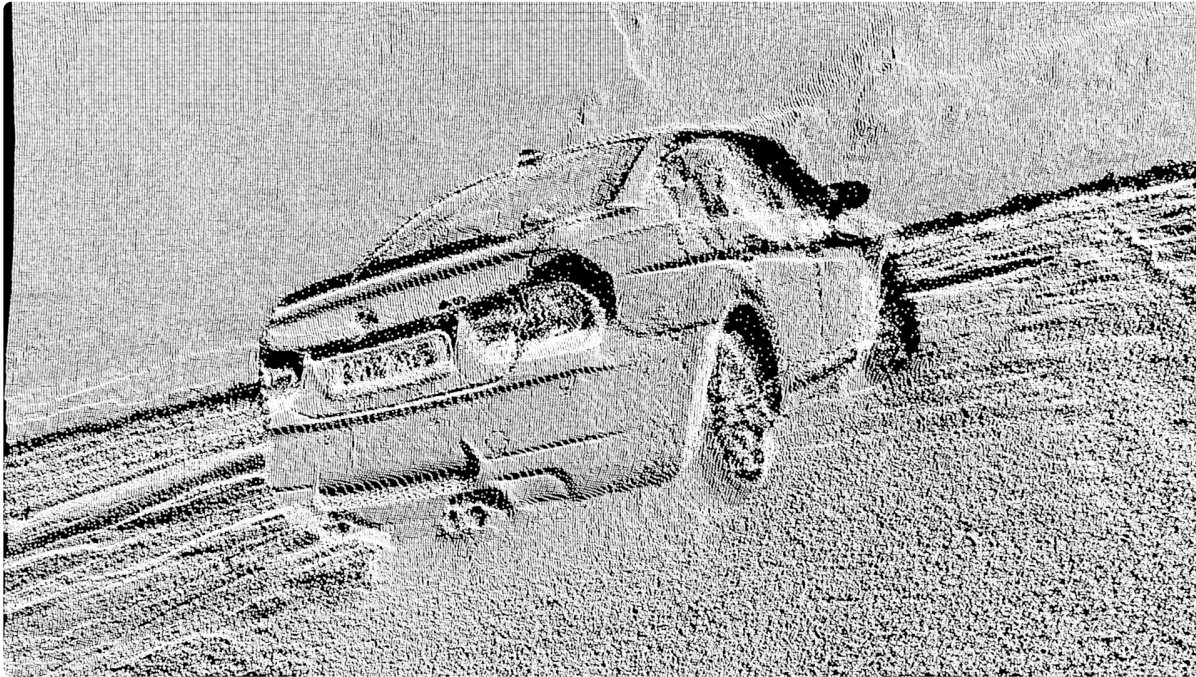
The fractal settings can also be driven by a separate layer, in the same way to dispersal. A layer such as a color gradient can then be used to adjust the intensity of the fractal warping.

In the example below, a simple gradient has been used to alter the fractal shape, resulting in less fractal warping at the right side of the frame and more at the left:



Displacement

The position of individual particles in the grid can be affected by another layer. In the example below a video layer of a car has been used to displace the atomic particles, revealing the layer's shape:



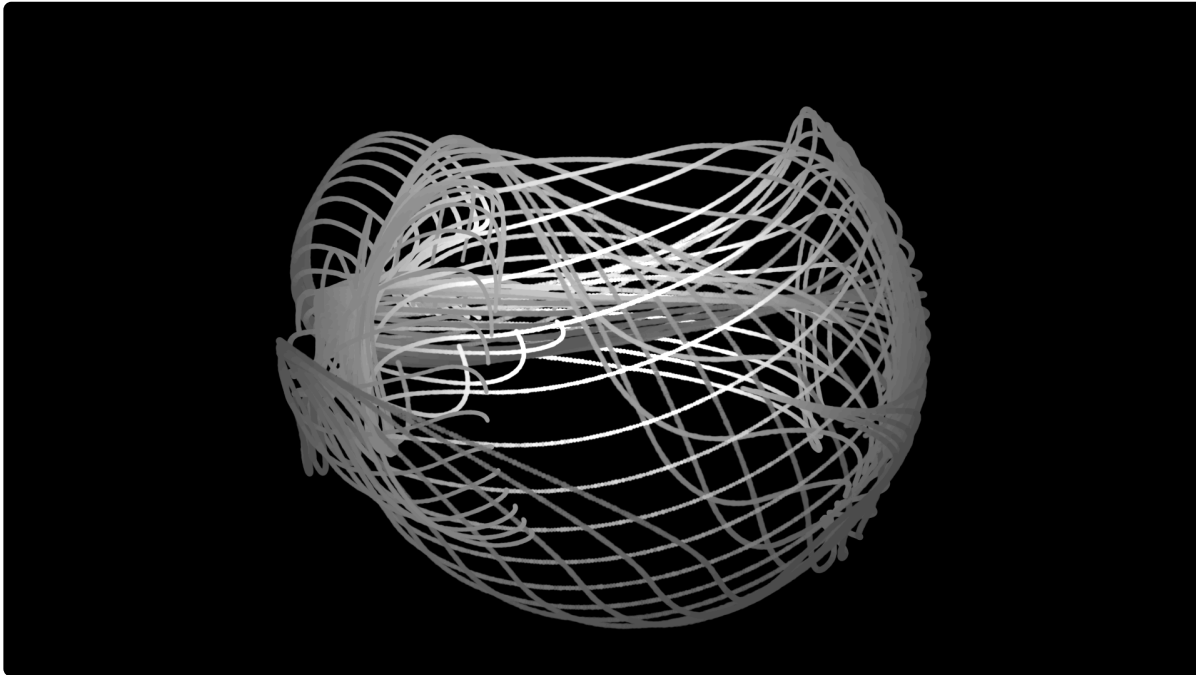
Size

The size of particles can also be linked to another layer. In this example the size of the particles is affected by the car layer, with darker areas creating smaller particles;



Spherical warp

The particle grid can be warped by a sphere force, either attracting or detracting the particles. This can be used to wrap the particle grid into a spherical shape:



Audio interaction

Atomic particles animation can be driven by an audio layer.

The **audio layer** must first be chosen. This can be any layer on the timeline that includes audio.

Before the audio affects the particle animation it must first be mapped to particular properties.

There are four mapping slots and you can use as many as you want.

Mapping slots

The **Map to** property determines which property the audio interacts with.

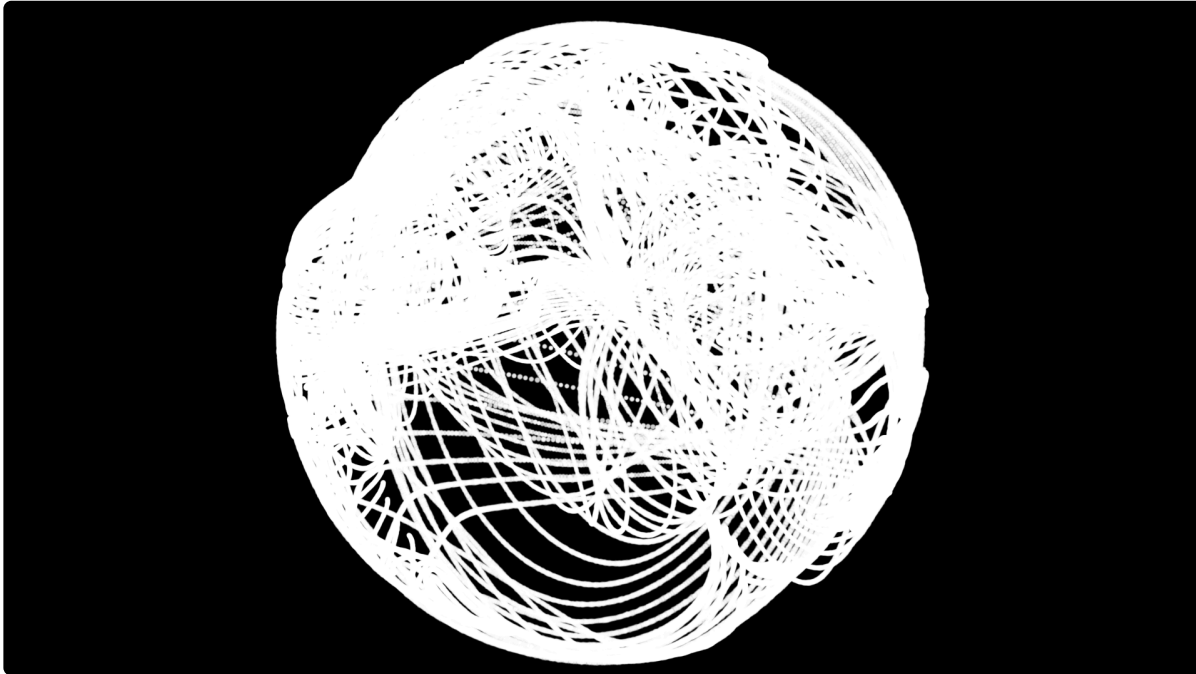
Frequency, **range** and **threshold** adjusts how the audio interacts with the particles.

Audio interaction works on top of the other atomic particles properties, so you will also need to adjust the corresponding property group to enable audio interaction. For example, if you choose **Fractal** as your map to option, you will also need to adjust some of the **fractal** properties.

Illumination

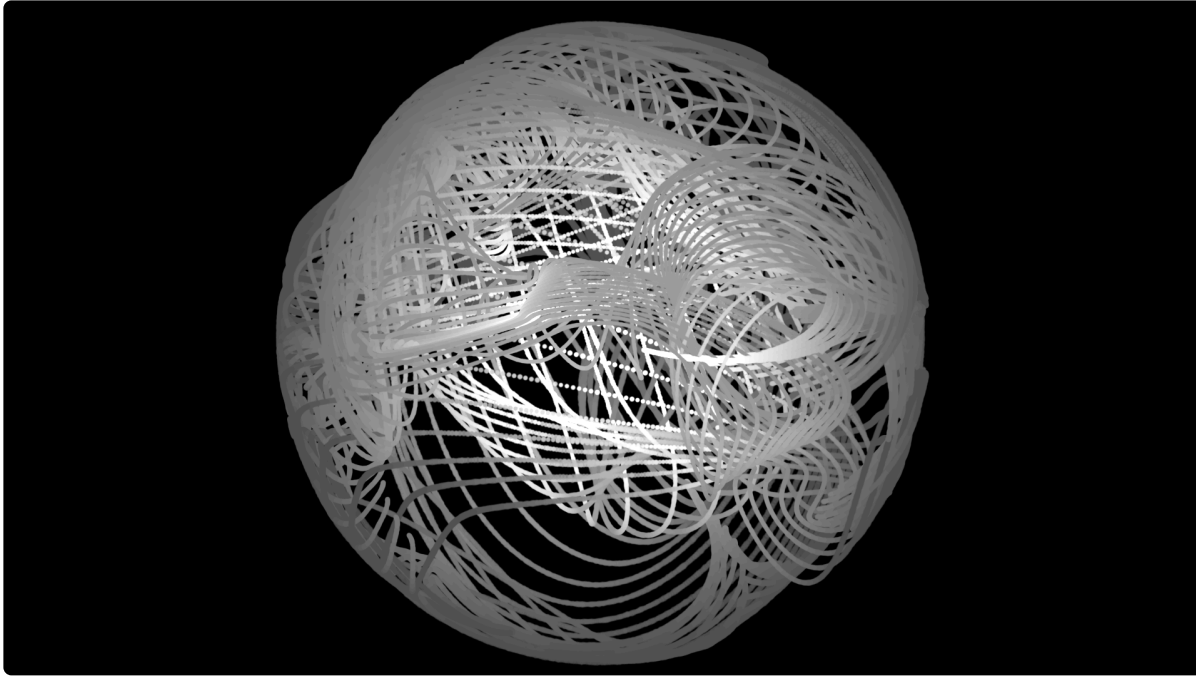
By default an atomic particles grid is lit only by its own specified color. The illumination properties can be used to enable full 3D lighting.

To illustrate the difference, here is an example with the **Illumination Type** set to **none**:



While the spherical shape is evident, there is no distinction between strands that are closer to the camera and those that are further away.

Here is the same shot with the **Illumination Type** set to **Comp lights**, with a single point light (with falloff) in the center of the shape:



By using the 3D light for illumination, it is possible to perceive depth in the atomic shape.

Comp lights will use all available lights in a scene.

Selected lights can be used to choose specific lights.

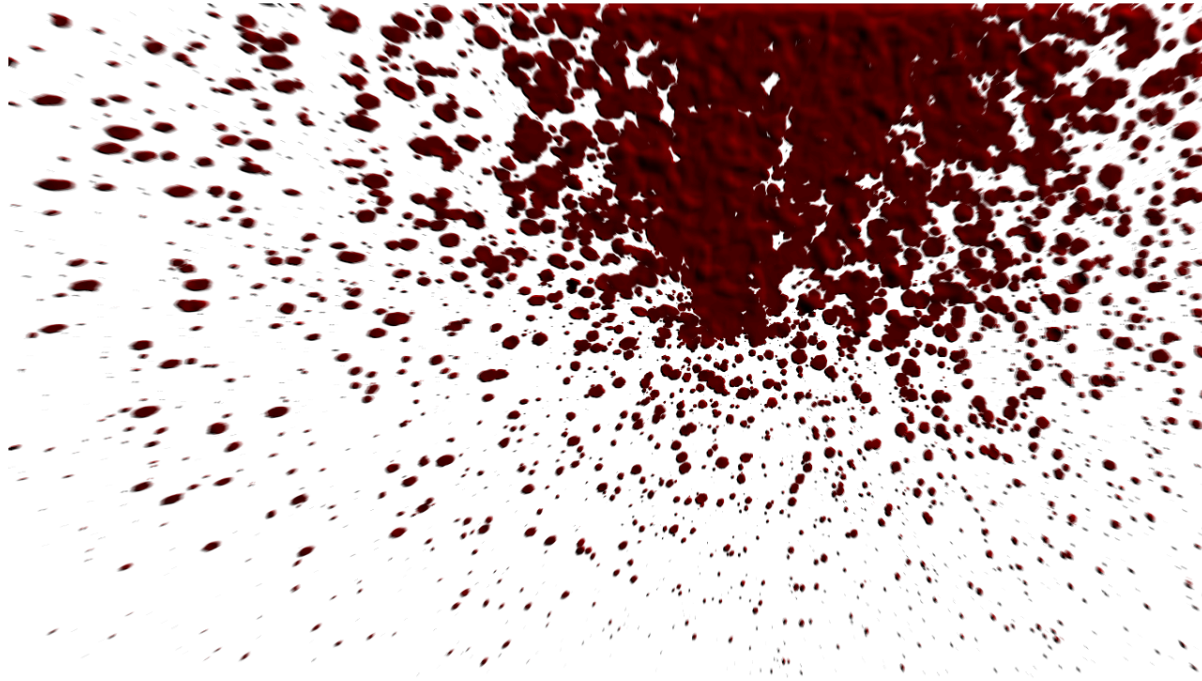
The **material** property group provides the same properties as found in standard 3D layers.

Motion blur

Motion blur can be turned on or off. Using the **Comp settings** option will match the motion blur found in the rest of the composite shot.

2.13.2. Blood Spray

Creates a spray of blood that jets out from the center point. The effect can also simulate the blood impacting on a surface.



Particle generation

These properties determine when the spray begins, its duration and its total density.

A longer **duration** will result in a thinner spray unless the **number of particles** is also increased.

Particle birth properties

The angle, speed and size of the spray are set using these properties.

Simulation

By default the spray is pulled down by **gravity**. The strength of this gravity can be adjusted.

The collision plane can be used to simulate the effect of the spray hitting a flat surface.

Appearance

The color of the spray is set here. The spray has two colors, which are used to create the illusion of depth.

Illumination

The illusion of depth can be adjusted using the illumination properties.

Motion blur

The blood spray effect can receive automatic motion blur.

2.13.3. Fire

The Fire effect creates procedurally generated flames. There are numerous settings to control the behaviour and appearance of the fire.



Fire regions

There are three definable regions for the fire: **flammable region**, **blocking region** and **burn direction**. If you leave these blank the fire will use the entire layer as its source (excluding transparent areas).

If you select a layer and channel for any of the regions or the direction the fire will be influenced by those elements. This way you can use layers such as gradients to further control the fire's behaviour.

Simulation

- **Seed** – creates a different random variety of fire.
- **Iterations** – more iterations will create a more realistic simulation of the fire's movement.
- **Pre-start** – by default the fire starts on the first frame of the layer. This enables you to start the fire before the first frame.
- **Flammable end** – determines when the fire is no longer visible.
- **Source scale** – changes the size of the fire source elements.
- **Source variation** – adjusts how often the fire changes formation. Low variation will create a smoother, less volatile fire.
- **Source fill** – changes the density of the fire.
- **Movement** – changes the length of the flames.
- **Source noise** – adjusts the random density of the flammable region.

- **Source intensity** – adjusts the density of the flammable region.
- **Reload maps** – activating this property creates a more realistic simulation when the flammable region is animated.
- **Source position** – moves the entire fire simulation. When combined with 2D tracking this can create more realistic composites into videos with moving cameras.

Wind

Wind can be applied to the fire to push the flames in a particular direction.

Appearance

The **color** and **blend** method of the fire can be altered here.

The **temperature** settings change the intensity of the fire. A lower low temperature will reveal more detail in the flame.

2.13.4. Gunfire

The Gunfire effect uses a customized version of the particle simulator originally developed for HitFilm Pro, and is the best tool available for creating CG muzzle flashes.

There are many benefits to creating your muzzle flashes digitally:

- No need to use dangerous and expensive blank-firing weapons.
- You can shoot silently in areas that might not normally allow gunfire.
- Complete artistic control over the look and behavior of your weapons.
- You are no longer limited to re-using the same muzzle flash stock footage.

✱ **Important:** Even if you're not using blank-firing weapons during shooting, always make sure you have notified the police and informed local residents prior to filming. Don't assume that the presence of a camera is enough to let people know you're making a movie.

Gunfire can be moved using the standard Transform properties. For realistic positioning, the gunfire origin should be positioned at the end of the gun barrel.

Appearance

- **Textures** – see the [Gunfire textures](#) chapter for details.
- **Preview** – toggles between textures and preview particles.
- **Blend** – changes how the textures blend together. Add will usually give the best results.
- **Colorize** – this overrides the texture's original colors with the **Color** property.
- **Color** – changes the gunfire's color when you have **Colorize** deactivated.
- **Color** variation – introduces random variation to the chosen color when you have **Colorize** deactivated.
- **Active** – turns the entire muzzle flash on and off.
- **Rate of fire** – percentage chance of the muzzle flash appearing on the current frame. 100 ensures the muzzle flash is always visible. Lower values are useful for creating the appearance of automatic weapons fire, without needing to manually keyframe the **Active** property.
- **Seed** – this is used to generate random variations of the muzzle flash shape. Keyframing the seed will ensure that your muzzle flash is different each time it appears, while retaining its basic shape.
- **Blur strength** – changes the amount of blur applied when motion blur is turned on.

Core flare

The core flare is the central part of the muzzle flash and is projected directly out of the front of the barrel.

- **Active** – turns the core flare on and off.
- **Scale** – the size of the particles that form the core flare.

- **Barrel gap** – the distance between the core flare and the barrel.
- **Length** – the length of the core flare.
- **Length taper** – changes the weighting of the length of the core flare.
- **Radius** – the radius of the core flare.
- **Radius taper** – changes the weighting of the radius of the core flare.
- **Jitter** – creates a more dispersed and randomized appearance.
- **Intensity** – creates a brighter core flare.
- **Primary number** – the number of particles that make up the main part of the core flare.
- **Secondary number** – the number of particles that make up the **jitter** part of the core flare.

Side flares

- **Active** – turns the side flares on and off.
- **Scale** – the size of the particles that form the side flares.
- **Number of flares** – adjusts how many side flares are visible.
- **Barrel gap** – the distance between the side flares and the barrel.
- **Barrel angle** – the angle of the side flares in relation to the barrel.
- **Barrel rotation** – all side flares can be rotated around the gun barrel.
- **Length** – the length of the side flares.
- **Length taper** – changes the weighting of the length of the side flares.
- **Radius** – the radius of the side flares.
- **Radius taper** – changes the weighting of the radius of the side flares.
- **Jitter** – creates a more dispersed and randomized appearance.
- **Intensity** – creates brighter side flares.
- **Primary number** – the number of particles that make up the main part of the side flares.
- **Secondary number** – the number of particles that make up the **jitter** part of the side flares.

2.13.4.1. Gunfire Textures

The gunfire effect's texture system provides a powerful method for customizing the look of your muzzle flashes.

Texture sources

There are three possible texture sources:

- **None** – this will use a default circle shape.
- **Layer** – any layer can be assigned as the texture source, including embedded composite shots and 3D models.
- **Built-in** – a selection of default textures are provided for quick access.

Using layers as textures

After selecting to use a **layer** as the **texture source** you will need to specify the **source layer**.

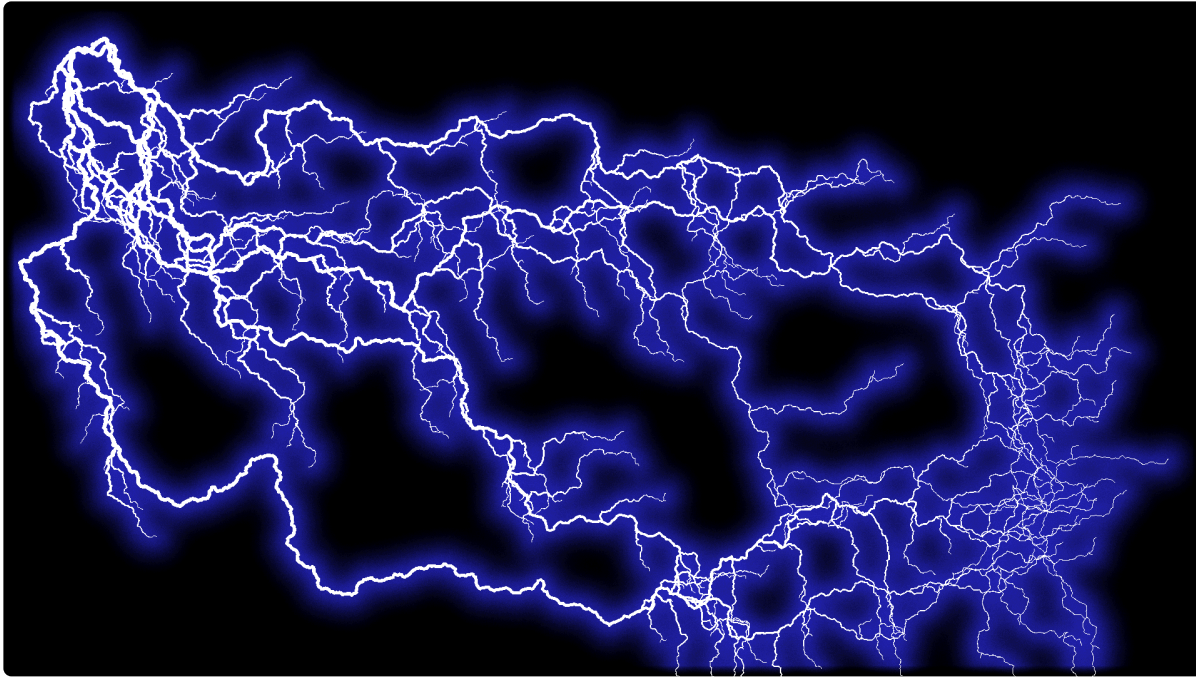
✿ Large resolution and animated textures may have an impact on performance.

There are three **Frame options** when using a source layer:

- **Single** – uses a single frame of the source layer as the texture. The frame can be specified using the **Frame number** property
- **Random** – randomly selects a frame for each particle. The random selection can be changed using the **Seed** property.
- **Animated** – enables the use of sequential frames from the source layer as the texture. The **start frame** and the **number of frames** to use can be set. The **loop** option will cause the texture to return to the start frame after the specified number of frames have been used.

✿ Keyframing the start frame property will cause each particle to have a different start frame.

2.13.5. Lightning & Electricity



HitFilm's lightning generator can create a limitless variety of electrical effects.

Lightning consists of several main elements:

- The **core** is the solid color center of the effect, most commonly white.
- The **glow** is the softer color around the edge of the effect.
- **Trunks** are the primary lines used to draw the lightning.
- **Branches** are created along trunks, adding detail to the effect.
- **Twigs** are created along branches, adding fine detail to the effect.

You can adjust the number of trunks, branches and twigs in the effect using the relevant property groups. Changing these will drastically alter the appearance of the effect.

Wave & twitch

The wave and twitch properties determine the shape of the lightning.

- **Wave** creates a more undulating, curved line.
- **Twitch** increases the number of twists and turns in the line.

Start & end

The **start** and **end** groups control the overall dimensions and animation of the lightning.

The **Growth** property is used to give the appearance of a lighting strike, causing the lightning to extend and travel down its length.

Animation

- **Speed** – the speed of the lightning's movement.
- **Jitter** – how often the lightning regenerates to a completely new position.
- **Scale** – how much the lightning moves from its central position.

2.13.6. Rain On Glass

The Rain On Glass effect allows you to quickly simulate the appearance of looking through a window covered with raindrops.

Simulation

Use the simulation controls to set the size and quantity of raindrops.

- **Drops Per Second:** Adjusts the number of new drops that hit the frame each second, to control how hard it is raining.
- **Rain Drop Size:** Changes the size of the rain drops.
- **Seed:** Randomly changes the pattern of the raindrops.

Rendering

The appearance of looking through glass involves subtly distorting the original image. The Rendering settings control how this is handled.

- **Layer Tiling:** Choose how the area around the image will be filled, when it is scaled smaller than the frame.
 - **Off:** Doesn't fill around the image. the original layer will be visible around the effect.
 - **Tile:** Creates rows and columns of the image, to fill the edges.
 - **Mirror:** Applies a mirrored version of the image to each edge. This is the default method, and usually gives the best result.
- **Layer Scale:** Adjusts the scale of the source image within the effect.
- **Glass Thickness:** changes the glass distortion applied to the image. Thicker Glass will create more glare on the image.
- **Layer Distance:** Adjusts the distance of the image outside of the glass.

Environment Map

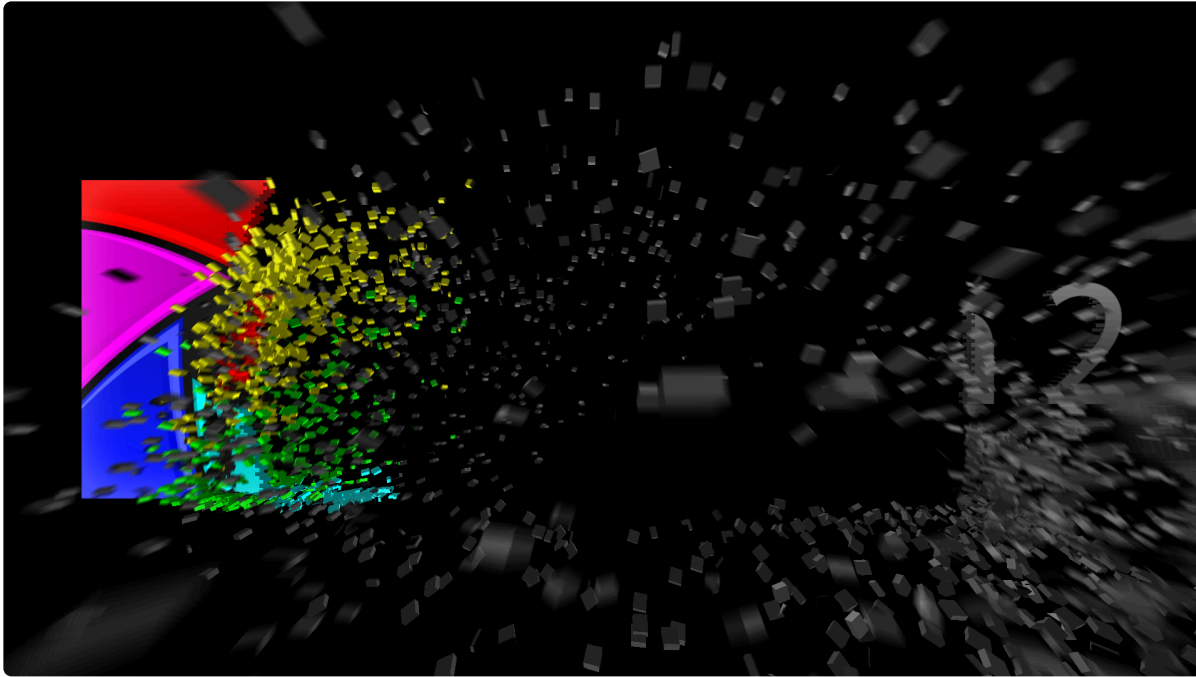
Raindrops will contain micro reflections of their surroundings. The environment Map settings define what is contained in those reflections. By default, the layer the effect is applied to is used as the Environment Map.

- **Use Environment Map:** Toggles Environment Map on and off.
- **Source:** Select the source layer you want to use as your environment map.
- **Amount:** The intensity of the environment map reflections
- **Scale:** Changes the size of the image within the reflections, to simulate the distance between the raindrops and the environment.
- **Scale Ratio:** Adjust the width to height ratio. Environment mapping wraps your selected image into a sphere, which sometimes results in a distorted image. You can compensate for that distortion here.
- **Transform:** Rotates the environment map around the X, Y and Z axes.

2.13.7. Shatter

The Shatter effect is used to break a layer into 3D chunks.

Here is the HitFilm logo being shattered:



Although applied as a 2D effect, shatter can be explored in 3D.

Position

The effect's position in 3D space is determined by these properties. The effect can also be parented to another layer using the **Transform From** property.

Shatter in 3D

Shatter is added to a layer as a 2D effect. It can be adjusted to exist in 3D space using this technique;

1. Create a new point layer.
2. Set the point layer's **dimension** to 3D.
3. Apply the shatter effect to a layer and explore the **Position** property group.
4. Set the **Transform From** option to link to the point layer created in step 1.

The shatter effect will inherit 3D position data from the point layer. 3D cameras can then be moved in and around the shatter pieces in 3D.

Pattern

Determines the shape of the shatter pieces.

The **Type** can be set to the preset **brick** and **hex** shapes, or to a **custom** shape.

The **Size** property alters the size and number of individual **brick** or **hex** pieces.

The custom shape by default will use the layer itself as the shape. This will break a layer into its component pieces, with shapes and sizes defined by the layer's composition.

Custom maps

You can also select another layer on the timeline as a **custom map**. This will then use that layer to define the breaking points and shapes.

The **fixed color** property specifies a color in the custom map which will remain unshattered.

The **Threshold** property adjusts the detail of the shatter. Lower thresholds will result in finer shatter pieces.



Low thresholds can reduce performance.

Extrusion adjusts the depth of shatter pieces.

Physics

The physics property group defines the behaviour of the shatter.

Forces

The force defines the point at which the shatter takes place. The force can be small or large, as defined by the **Radius** property.

The **Strength** of shatter impact can be adjusted.

The force's **Position** can be altered or linked to another layer on the timeline.

Gravity

After the shatter pieces are created by the Force they are then affected by gravity, which pulls the pieces in a direction as defined by the **XY Direction** and **Z Direction** properties.

The Shatter effect can also include a simulated floor for the shatter pieces to land on. The relative height of

this floor is defined by the Floor Distance property.

Simulation

The behaviour of the shatter pieces is defined by the **Simulation** properties.

Timing

The timing properties are used to alter the beginning and end of the shatter effect within the applied layer.

Appearance

The front, back and sides of the shatter pieces can be colored and textured individually using the Appearance properties.

Render

The **Render** properties can be used to alter what is rendered during a shatter effect and the overall quality.

Depth of field for the Shatter effect can also be activated here.

Motion blur

Motion blur can be applied to the Shatter effect, using the **Comp settings** or the effect's own setup.

Illumination

The shatter pieces can be illuminated by 3D lights in the composite shot. You can choose to use either all lights with the **Comp lights** option, or select specific lights.

2.14. Scene

The scene effects are designed to enhance the 3D compositing environment. Each effect has its own page, where you can find full details of the effect and its controls.

- [Parallax](#)
- [Projector](#)
- [Surface Studio](#)

2.14.1. Parallax

The parallax effect creates the illusion of 3D depth in a 2D layer.

In this example parallax has been used to apply a cracked concrete texture to some text:



The **height map** is used to determine the depth effect.

When set to **None** the host layer's own texture will be used for the parallax effect. You can also choose a different layer to use as the height map.

The **Blur Height Map** property can be used to create a softer, smoother parallax effect.



The parallax effect is most effective when combined with HitFilm's 3D lights.

2.14.2. Projector

Camera projection can be used to project a camera's view onto a layer. This can be used for object removal, converting still images into 3D scenes and projecting 2D effects onto 3D angles.

- **Projection From** – The source layer to be projected to the current layer.
- **Camera** – The camera that is used for the projection.
- **Layer Opacity** – Opacity multiplier for the projected image.
- **Blend** – The blend mode used to composite the projected layer onto the current layer

2.14.3. Surface Studio

Surface Studio is a powerful tool for generating smooth or roughly textured metallic and vitreous surfaces on any text or layer. It uses a ray tracing algorithm, together with height maps, to render 3D geometry based on 2D layers.

The default height map is created based on the values present in the layer the Surface Studio effect is applied to.



- **Height:** Sets the overall height of the height maps. Height maps use greyscale values to define the height of each pixel, with black pixels being the lowest and white pixels being the highest. This value defines the range between the highest and lowest points.
- **Environment:** Select a layer to be used as an environment map. If the materials used for the surface are reflective, then the environment map will be reflected as if it surrounded the layer in 3D.
- **Background:** Select a layer to be a background, behind all surfaces. Especially when transparent surfaces are being used, having a background is important for getting accurate refractions.

Background Layer

These settings affect the background layer selected above.

- **Visible:** Toggles whether the background layer should be visible outside of the raytraced surfaces.
- **Depth:** Defines how far behind the height maps the background layer sits.
- **Wrap:** Toggles whether wrapping should be applied to the background layer

Material

- **Ambient:** Determines how much the layer is illuminated by ambient lights.

- **Diffuse:** Determines how much the layer is illuminated by point, directional and spot lights.
- **Specular:** Adjusts the strength of specular highlights when illuminated by point, directional and spot lights. A low specular value will create a more matte surface.
- **Shininess:** Adjusts the size of the specular highlight. A low shininess creates a large, diffuse highlight while a high value creates a smaller, defined highlight.

Surfaces 1-4

Surface Studio allows you to layer up to 4 different surfaces within the effect, each using its own height map. Using multiple surfaces allows you to build up a material made of multiple layers.

For example, you could use one surface to represent the bricks of a wall, then another to represent the plaster over the bricks, and a final layer on top to represent the paint or wallpaper over it. Then, by animating the height maps for the different surfaces, you could make the wall age, and start to crumble, to reveal the layers beneath.



Surface 1 is the top level, primary surface. The other surfaces are positioned underneath it in sequence, with surface 4 being the lowest. Surfaces 2-4 have a Mode property, which determines how they interact with or are affected by the surface above. Each surface has its own set of the following controls.

- **Height:** Sets the depth of the height map for the current surface. Height maps use greyscale values to define the height of each pixel, with black pixels being the lowest and white pixels being the highest. this value defines the range between the highest and lowest points.
- **Mode:** The mode determines how the current surface interacts with or is affected by the surface above it. This menu is only available for surfaces 2-4.

- **Clamped:** Clips any areas where the current surface reaches higher than the surface above it. Thus the current surface is only ever seen through the surface above. Useful if Surface 1 is set to be glassy or watery.
- **Overlap:** Allows the entire height map of the current surface to be used. In areas where the current surface reaches higher than the surface above, it will be rendered accordingly. In areas where the height map of the current surface is below the height map of the surface above, it will be rendered behind it.
- **Overlay:** Only areas where the height map of the current layer reaches higher than the surface above it will be rendered. The current surface is thus added to the top of the the original top surface. Useful for adding moss or other surface detail to the top of Surface 1.
- **Color:** Sets the color of the surface.
- **Surface Alpha:** Adjusts the transparency of the surface.

Height Map

- **Height Map:** Select the image you wish to use as a height map for the current surface.
- **Depth Blend:** Select how the user defined height map is blended with the default height map based on the contents of the layer the Surface Studio effect is applied to.
 - **Add:** For each pixel, the value of that pixel in the default depth map, and the value of that pixel in the height map selected for the current surface are added together, to determine the value its height will be based on.
 - **Max:** Compares the value in the two maps, and for each pixel selects whichever is higher.
 - **Min:** Compares the values in the two maps, and for each pixel selects whichever value is lower.
 - **Mult:** For each pixel, the value in each of the two maps are multiplied to create the new value on which the pixel's height will be based.
 - **Subtract:** For each pixel, the value of the current surface's depth map is subtracted from the value of the default height map.
- **Generate:** Toggles the height map for the current surface on and off.

Bevel

These settings modify the height map that is generated for the current surface.

- **Height:** Adjust the overall height distance between the white and black areas of the map.
- **Size:** Changes the size of the height map.
- **Edge Offset:** Shifts the edges of the surface outward from the actual edges of the layer

External Material Properties

These settings determine how the raytracing interacts with the outer skin of the current surface.

- **Reflectivity:** Determines how reflective the external surface of the current surface is.
- **Fresnel:** Adjusts how the reflection changes based on the viewing angle.
- **Ambient:** Determines how much the layer is illuminated by ambient lights.
- **Diffuse:** Determines how much the layer is illuminated by point, directional and spot lights.
- **Specular:** Adjusts the strength of specular highlights when illuminated by point, directional and spot

lights. A low specular value will create a more matte surface.

- **Shininess:** Adjusts the size of the specular highlight. A low shininess creates a large, diffuse highlight while a high value creates a smaller, defined highlight.

Internal Material Properties

These settings determine how the raytracing behaves while traveling through the volume of the current surface's height map.

- **Refractive Index:** Defines how the raytracing behaves as it travels through the volume of the current surface's height map.
- **Translucence:** Defines how cloudy or how transparent the surface is. Increasing the value means that the raytracing will be impacted more by the color of the surface as the ray travels through it.
- **Illumination:** Select the illumination options that will be used to render the layer
 - **Default Lights:** Renders using the illumination built into the Surface Studio effect. If there are no lights on the timeline, this still allows you to see the 3D aspects of the effect.
 - **Comp Lights:** Uses all of the lights that are present on the timeline.
 - **Selected Lights:** Allows you to select specific lights that are present on the timeline, if you don't want all lights to be factored into the render.
- **Antialiasing:** Determines the number of rays cast to trace each pixel by the raytracing engine. Higher values take longer to render, but may give more accurate, realistic results.

2.15. Sharpen

The sharpen folder contains tools for sharpening images.

- [Highpass Sharpen](#)

2.15.1. Highpass Sharpen

Sharpening is a common application for highpass filtering. To create the sharpening, a duplicate of the layer is created, a highpass filter is applied to the duplicate, and the result is then blended back onto the original. All of this is handled internally by the Highpass Sharpening effect, greatly simplifying the process.

- **Radius:** Sets the radius, in pixels, which will be evaluated to identify contrast.
- **Amount:** Adjusts the intensity of the sharpening.
- **Blend Method:** Choose the blend method used to create the sharpening
 - **Linear Light:** Creates a stronger, more intense sharpening.
 - **Hard Light:** A mid-range option, similar to Overlay in intensity.
 - **Soft Light:** Soft Light method gives the most subtle results.
 - **Overlay:** Overlay is the traditional blend mode used for highpass sharpening, and is good for general use.
- **View Highpass:** Enabling this option shows the highpass filter used for the sharpening, in the viewer. Useful for viewing how large of an area around the edges is being affected.

2.16. Stylize

The stylize effects offer more extreme color grading options. They often combine multiple techniques into a single effect.

- [Cartoon](#)
- [Emboss](#)
- [Find Edges](#)
- [Glow Darks](#)
- [Leave Color](#)
- [Posterize](#)
- [Solarize](#)
- [Threshold](#)
- [Tint](#)

EXPRESS ADD-ON

2.16.1. Cartoon

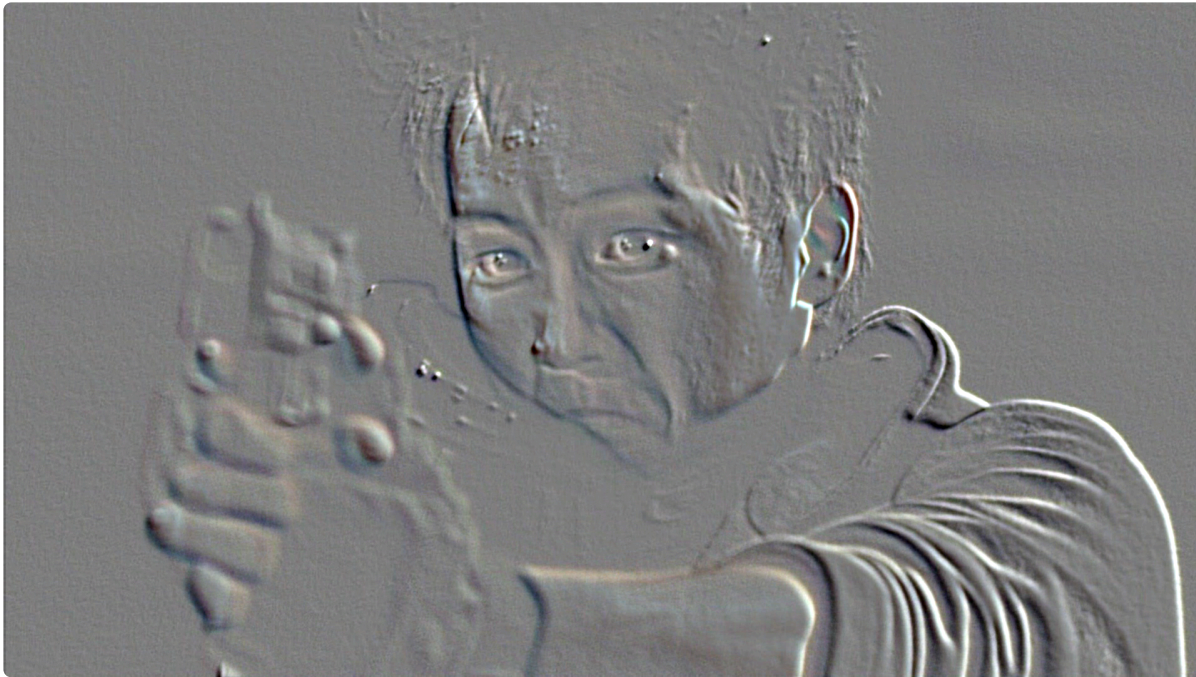
Creates the appearance of a cartoon drawing, with smoothed colors and lines drawn over edges.

You can heavily customize the appearance of the edge lines and the fill.



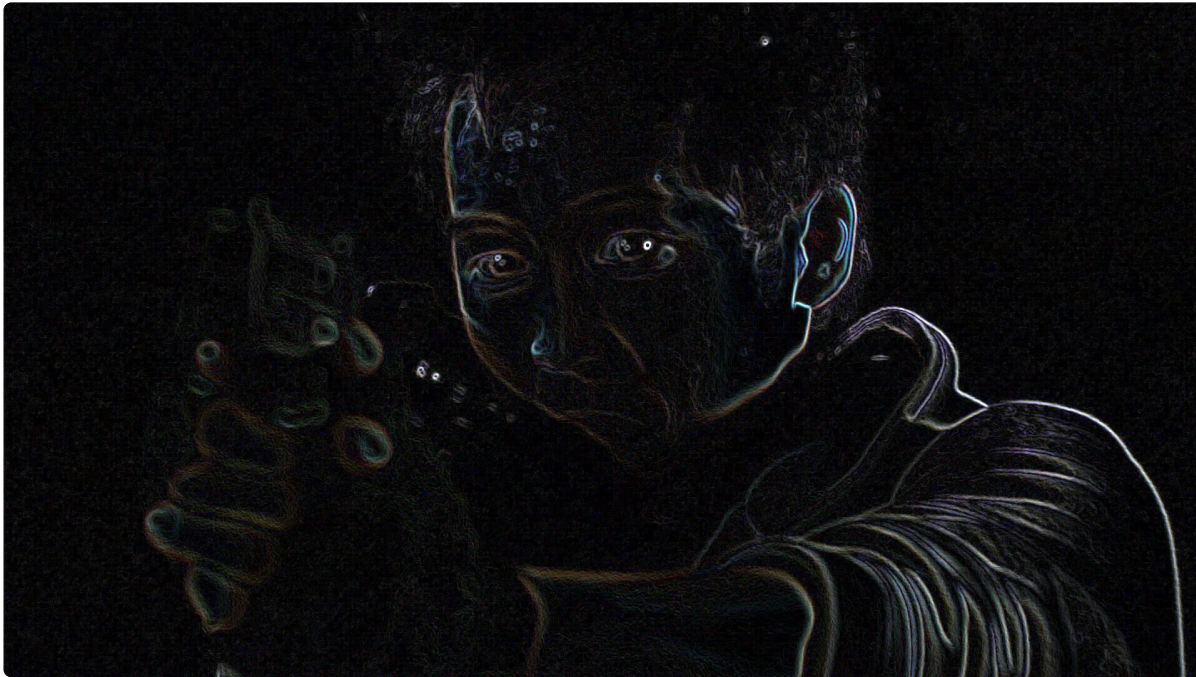
2.16.2. Emboss

Creates the illusion of a ridged image, based on the source layer, similar to clay imprint.



2.16.3. Find Edges

Reduces the layer to only showing edge areas.



2.16.4. Glow Darks

Functions in a similar way to a standard glow but affects dark areas rather than light areas.

2.16.5. Leave Color

Desaturates the layer except for a specified color range.



2.16.6. Posterize

Reduces the color detail in the layer to create blocks of color.



2.16.7. Solarize

Creates the appearance of a film negative that has been exposed to light during development.



2.16.8. Threshold

Reduces the layer to just two colors. You can specify the colors and the threshold changes the emphasis of the effect.



2.16.9. Tint

Tints the layer, shifting dark and light areas towards your specified colors.

The Amount to Tint property can be used to create subtle or extreme effects.



2.17. Temporal

Temporal effects alter layers based on time.

- [Echo](#)
- [Motion Trails](#)
- [Speed](#)
- [Time Displacement](#)
- [Time Reverse](#)

2.17.1. Echo

Creates repeated versions of the layer, offset in time, which are blended onto the current frame.

- **Echo Time** – the time difference between each echo.
- **Decay** – each subsequent echo will be less visible.



2.17.2. Motion Trails

Combines multiple frames of the source layer, so you can see a trail of the layer's previous positions.



2.17.3. Speed

Changes the playback speed of the layer.

* The speed effect does not change the duration of the layer on the timeline. If you reduce the speed of the layer you will not be able to see any frames which are not played before the end of the layer.

* The speed effect does not affect any audio contained in the layer.

2.17.4. Time Displacement

Displaces the layer based on time. You can displace using the layer itself or another layer.

The Black Time Shift and White Time Shift values specify where in time the displacement source is from.



2.17.5. Time Reverse

Plays the layer in reverse frame order.

2.18. Video Clean-up

These effects provide useful tools for improving the quality of your video footage and fixing common issues.

- [Clone Stamp \[Layer Only\]](#)
- [Crop/Pan & Zoom](#)
- [Denoise](#) **EXPRESS ADD-ON**
- [Grain Removal](#) **EXPRESS ADD-ON**
- [Rolling Shutter](#) **EXPRESS ADD-ON**
- [Wire Removal](#) **EXPRESS ADD-ON**

2.18.1. Clone Stamp

The clone stamp is useful for duplicating or removing specific parts of a layer. Combined with HitFilm's feature tracking this is a very powerful feature.



A separate layer can be used as a **clone mask**, defining the area to clone. Using a simple plane is usually the easiest way to do this, as the plane can be easily resized and positioned if necessary.

The clone source can be from the applied layer or from another layer, as defined by the **Clone From** property.

The **Source** and **Target** positions can then be specified, or linked to other layers. This enables the cloning

to be linked to points containing tracking data.

2.18.2. Crop & Pan

The Crop & Pan effect is used to change the framing of your source media. It provides two modes of doing this, as indicated by the title.

- **Crop** allows you to specify the portion of your media that you wish to see, and then auto-scales that area to fill your frame.
- **Pan & Zoom** adds animation abilities, so the position or size of the visible area can be altered over time.

When the effect is added to a timeline object, two buttons will appear in the bottom left corner of the Viewer, allowing you to choose which mode is used.

Controls Panel

The primary tools for controlling your crop are found on the viewer, but there are additional properties that can be accessed through the Controls panel. The viewer controls for each mode will be examined in detail further down this page.

- **Aspect Ratio:** Choose the aspect ratio of the crop area. Typically you will want this to match your timeline, but if you prefer a different shape, you can choose the aspect ratio you need here.
 - **Timeline:** Constrains the crop area to the aspect ratio of the active timeline.
 - **Original:** Constrains the crop area to the original aspect ratio of the clip being cropped.
 - ***16:9:** Constrains the crop area to a standard 16:9 widescreen aspect ratio.
 - **4:3:** Constrains the crop area to the 4:3 aspect ratio of traditional television.
 - **1:1:** Constrains the crop area to a square aspect ratio.
 - **9:16:** Constrains the aspect to a vertical aspect ratio.
 - **Custom:** Allows you to specify any aspect ratio you desire, using the Custom Aspect Ratio controls which appear when this option is selected.
 - **Width:** Specify the width of the crop area in pixels
 - **Height:** Specify the height of the crop area in pixels.
- **Autozoom:** Determines the size of the cropped area when the effect is applied.
 - **Enabled:** The crop area is scaled up to the largest size which will fit within your timeline resolution.
 - **Disabled:** The original scale is used, so the crop area remains at its original size and position, and all portions of the layer outside the crop area are removed.

Crop Mode

Crop, the default mode of the effect, overlays a white rectangle onto the viewer, which is the Crop Boundary. The area within the Crop Boundary is the Crop Area. Drag the edges or corners of the Crop Boundary to resize it and define the portion of the source media which you want to be visible. Here the white Crop Boundary has been resized and positioned to focus the shot on the two actors.



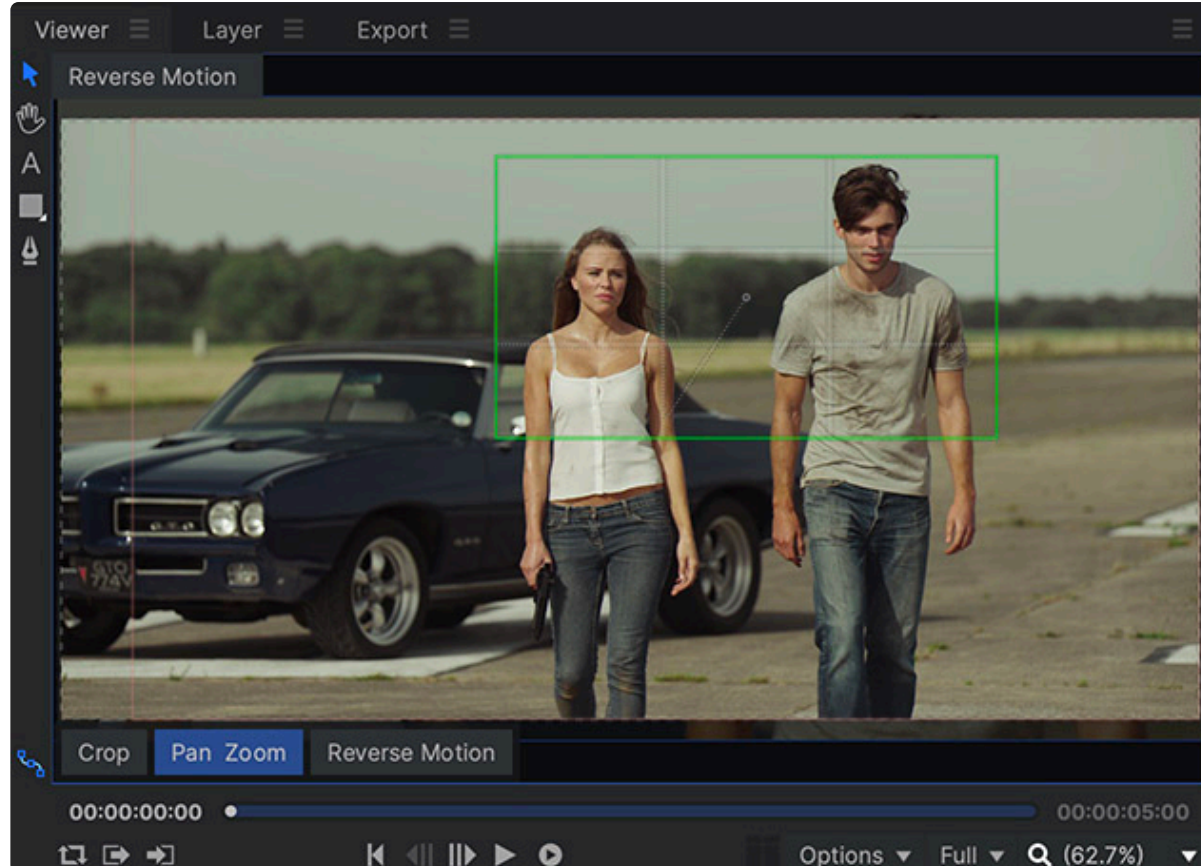
Once you click out of the effect controls, the crop will be applied. In this instance, compare the original clip on the left with the results of our crop on the right.





Pan & Zoom Mode

If you don't want the crop area to remain the same size, or in the same position, throughout the duration of the clip, you can switch to Pan & Zoom mode to animate the crop area. When Pan & Zoom mode is enabled, two Crop Boundaries will be displayed on the Viewer. The green crop boundary is the Start Crop, and the red boundary is the End Crop. Ignite Pro will automatically generate the animation to move from one crop to the other. Click inside of either boundary to select it for editing.



- **Green Crop Boundary:** The green boundary defines the crop that will be applied on the first frame of your layer. Click inside the green box to select it for editing, and the playhead will automatically jump to the first frame of your layer.
- **Red Crop Boundary:** The red boundary defines the crop that will be applied on the final frame of your layer. Click inside the red box to select it for editing, and the playhead will automatically jump to the last frame of your layer.

In this example, we have started with a similar framing to our crop example above, as shown by the green box around the two actors. The larger red box is nearly the full size of the original media, so Ignite Pro will gradually animate the position and size of the frame to reveal a wider shot.



When the Pan & Zoom mode is active, two additional buttons are displayed on the Viewer.

- **Reverse Motion:** Click this button to swap the Start Crop and End Crop, so that the motion of your pan & zoom is reversed. In our example, this would create a shot which starts wide, then moves in closer on our two actors.
- **Add Keyframe:** When the playhead is moved to any frame between the first and last frames of the

layer, this button will appear. In some instances, start and end keyframes may not be enough. Move the playhead to any other frame where you want to add an additional keyframe, then click this button. A new white crop boundary will appear, and you can edit the crop for that frame.

2.18.3. Denoise

Professional noise reduction is possible with the denoise effect.

Core Workflow

After the effect is applied to a noisy layer a highlight box will be displayed in the Viewer. This can be adjusted using the two control points.

This box should be positioned over a noisy area of the frame. This will provide the effect with input to analyze the video. Ideally select a flat region with mid-level brightness.

Click the **Analyze** button to analyze the selected area.

Some noise will be removed immediately.

To further refine, change the **View** setting to **Analysis Box**.

Move the control points so that the analysis box is over darker noisy area.

Click the **Analyze Brightness** button in the **Analyze** control group.

This will analyze the difference in the noise levels, between the brightness of the original analysis and the brightness of the new analysis region.

This will refine the noise removal.

The process can be further improved by increasing the number of frames used during the analysis. The more frames it uses, the more time it will take to render, but usually with superior results.

Controls

- **Analyze button** – Only visible when image has not yet been analysed. Uses the selected analysis area, to analyse the noise of the image.
- **Frames** – The number of frames used to remove the noise. It should be kept at '1' if applied to an image.

View modes

- **Result** – shows the result of the noise reduction
- **Analysis Box** – shows the region that will be used for analysis if one of the analysis button is pressed
- **Frequency Y** – shows how much the brightness changes at the selected frequency level
- **Frequency U** – shows how much the u color changes at the selected frequency level
- **Frequency V** – shows how much the v color changes at the selected frequency level

Frequency View Options Group

Only visible if the selected View is one of the frequency options.

- **Level** – The frequency level to be viewed.
- **Contrast** – Allows you to change the contrast of the displayed frequency. Sometimes the changes in frequency are too subtle to see. This control allows you to increase the contrast, to help you to see it.

Analyze Brightness

Used when noise amount varies depending on the brightness.

Updates the threshold values in the 'Threshold – Brightness' control group.

Re-Analyze

Discards the original analysis that was performed and re-analyzes with the currently selected analysis area.

Threshold

The controls under this group help the plugin to identify what is and isn't noise, by manually adjusting the threshold values.

- **Brightness** – The controls under this group, allow you to change the threshold values dependent on the brightness of the image. If, for example, not enough noise is being removed from dark areas, just increase the threshold of the '0' slider. If the problem is in the white areas, adjust the '100' slider. The sliders act like a graph, adjusting one will cause the nearby sliders to also be adjusted.
- **Channel** – These controls allow you to change the noise threshold depending on the YUV channel.
- **Frequency** – This allows you to change the noise threshold depending on the frequency of the data. It is easier to edit these slider if viewing the correct frequency: simply change the view to one of the frequencies; then change the frequency options level to correspond with the frequency slider.
- **Keep Edges** – This slider sometimes helps to bring more of the edges back. But as the value is increased, more of the noise might be brought back as well.

Removal Amount

These controls allow you to adjust how much of the noise is removed.

- **Y** controls how much noise is removed from variations in brightness, of the image. By default it is set at 80%, as removing all of the noise from the brightness tends to not look as good.
- **U/V** controls how much noise is removed from variations in color.
- **Frequency** controls how much noise is removed dependent on the frequency of the data.

2.18.4. Grain Removal

Basic grain removal. Also see [Denoise](#) for advanced noise removal.

2.18.5. Rolling Shutter

Some capture methods used by video cameras produce an effect called rolling shutter. This is particularly common with DSLR cameras. Rolling shutter can be identified by a wobbling, jelly-like instability in the frame during rapid movement.

The rolling shutter effect is designed to counteract rolling shutter, correcting the video and minimizing the effects of rolling shutter.

Shutter Direction is used to define whether the camera uses a vertical or horizontal shutter. Consult your camera's specifications for more information.

Correction

The **Correction** property is used to specify the amount of time it takes for the camera's shutter to travel across the frame.

In the case of cameras using a vertical shutter, this is defined as the time it takes in frames to capture from the top row of the image to the bottom row.

Positive values indicates the vertical shutter is travelling from top to bottom, while negative values are for bottom to top. You should consult the specifications of your camera to find the **correction** value to use.

Shutter sync

This property determines which part of the rolling shutter frame should be used to fix the image.

- -0.5 will use the frame at the beginning of the vertical shutter capture, as defined by the **correction** property.
- 0.0 will use the frame halfway through the vertical shutter capture. This is usually best as it will result in the minimum amount of distortion.
- 0.5 will use the frame at the end of the vertical shutter capture, as defined by the **correction** property.

Optical flow

Rolling shutter works by tracking the movement of every pixel in the frame using optical flow techniques.

The **View** menu can be used to observe the accuracy of the optical flow track.

Different videos may require adjustments to the optical flow properties. Adjusting the **Window size** and **Sigma** properties tend to yield the best results.

2.18.6. Wire Removal

Easily remove wires from your shot using this tool to paint them out

- **Start Position:** Sets the location of the start point. You can either move the Position point on the Viewer, or change the values manually.
- **Use Layer:** Allows you to use the position of another layer by selecting it. Useful if you have tracked the ends of the wire, and want to use the position of Point layers that contain the tracking data.
- **End Position:** Sets the location of the end point. You can either move the Position point on the Viewer, or change the values manually.
- **Use Layer:** Allows you to use the position of another layer by selecting it. Useful if you have tracked the ends of the wire, and want to use the position of Point layers that contain the tracking data.
- **Width:** The Wire Removal effect draws a line over the wire, between the start and end points, and repaints that line using background info from the video. This slider sets the width of the line. Adjust it so it covers the entire wire that needs removed.
- **Gradient:** Softens the edges of the repainted line to blend it into the background. Try to raise this setting only as much as the scene requires. Setting it too high may create a ripple as the wire moves.
- **Reflection:** Increasing this setting adds a reflection at the center of the line, which may help to blend the line into the scene better.

2.19. Warp

These effects stretch and push your layers into new shapes.

- [Action Cam Crop](#)
- [Action Cam Lens Distort](#)
- [Bezier Warp](#)
- [GoPro FX Reframe](#)
- [Lens Distort](#)
- [Page Curl](#)
- [Perspective Warp](#)
- [Polar Warp](#)
- [Quad Warp](#)
- [Spherical Warp](#)
- [Vortex Displacement Warp](#)

2.19.1. Action Cam Crop

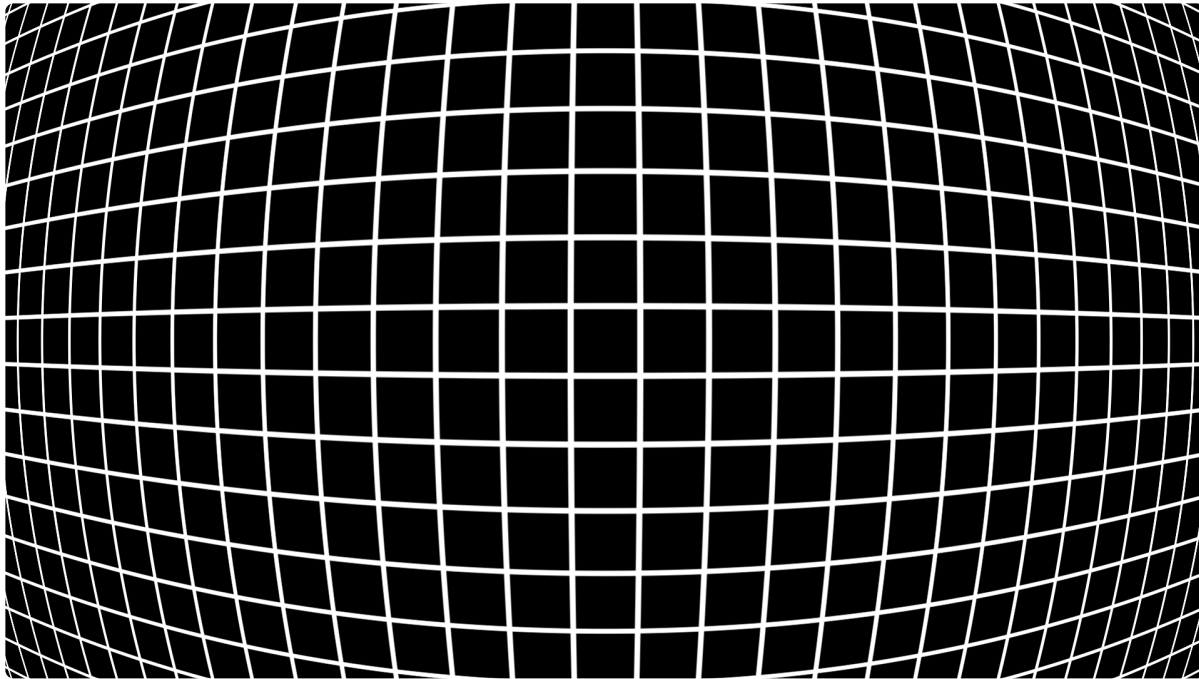
A basic tool to quickly adjust your GoPro footage to crop to different framing.

For more advanced reframing, see [GoPro FX Reframe](#).

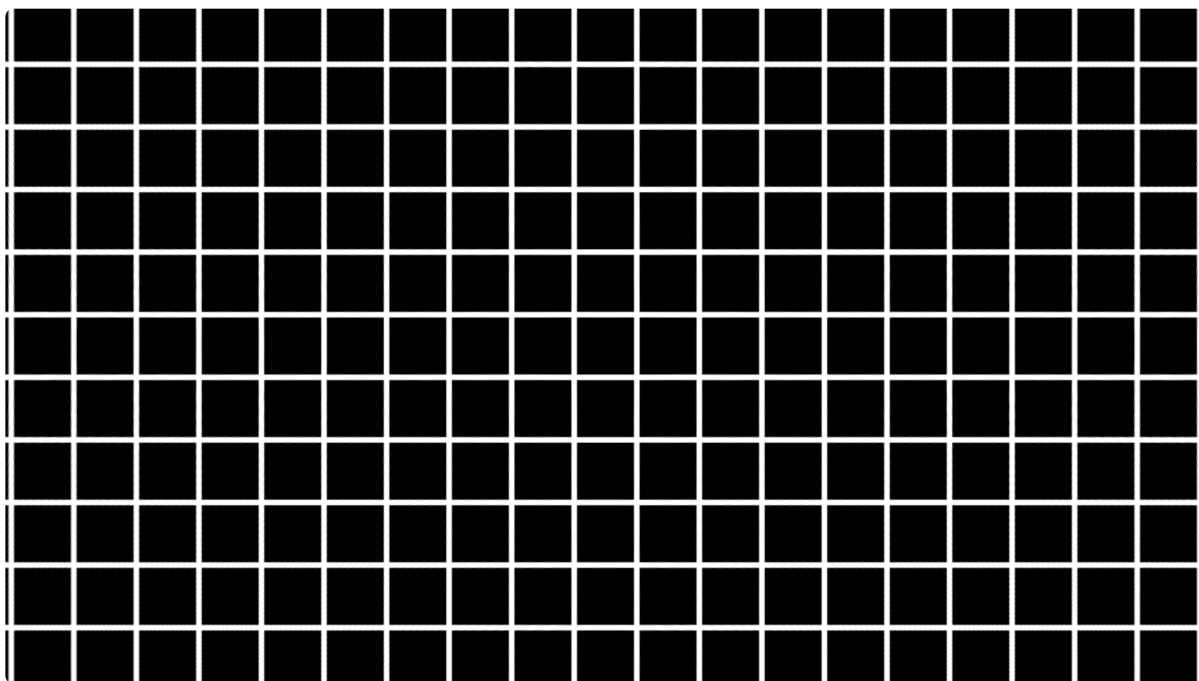
2.19.2. Action Cam Lens Distort

Adds or removes fisheye lens distortion. Several presets are provided specifically for use with GoPro cameras, making it simple to composite layers naturally into GoPro footage or to adjust GoPro footage to match traditional lenses.

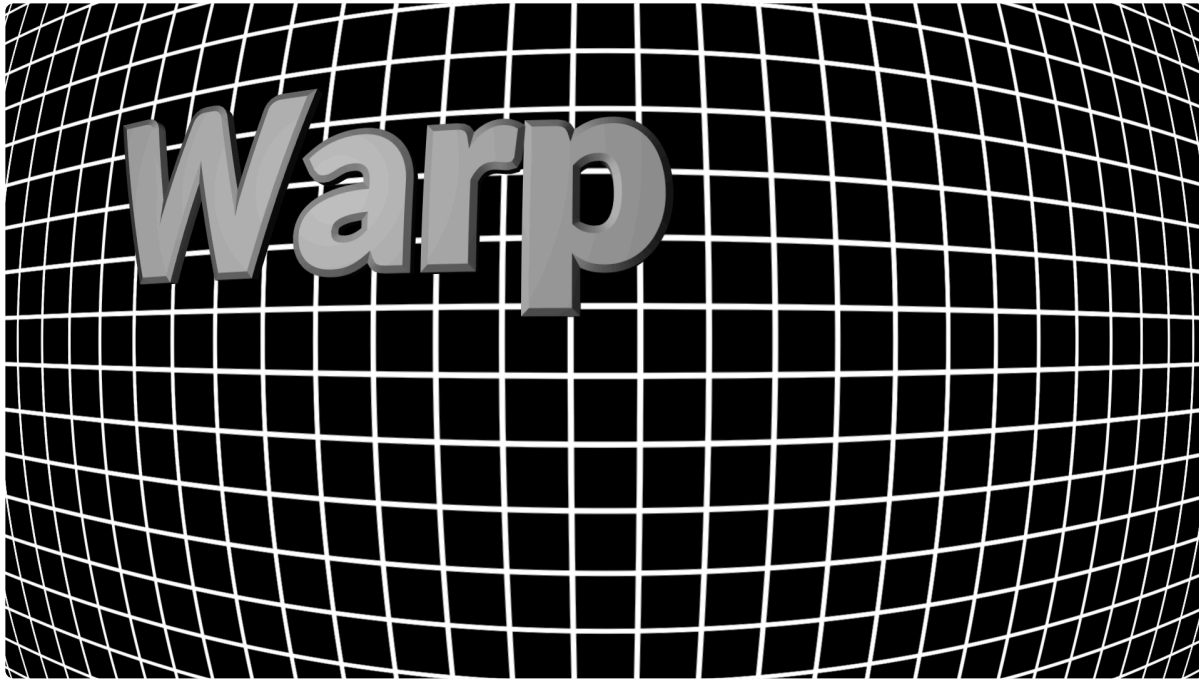
Here is a grid representing the natural curvature of a GoPro HERO4:



Here is the exact same image with the curvature removed using the fisheye warp:



The effect can also be used applied to other layers, so that they can be composited realistically into fisheye footage:

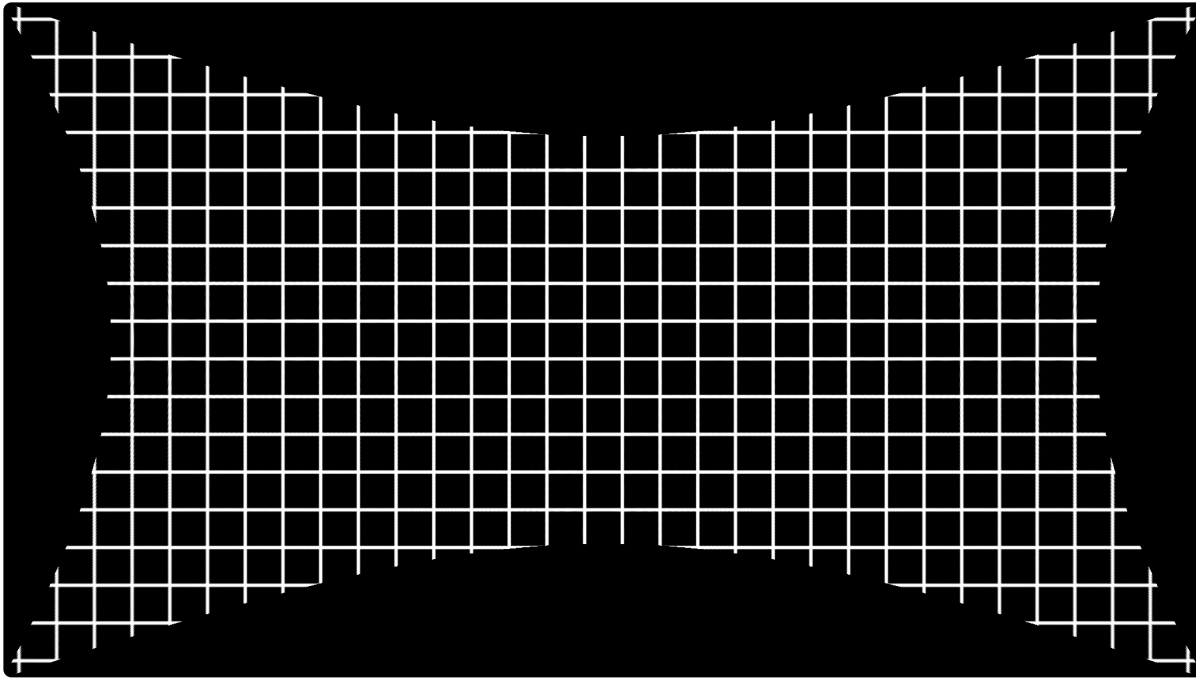


The FOV property adjusts the amount of distortion and Center adjusts the distortion's center – ordinarily you will want to leave the Center at 0,0.

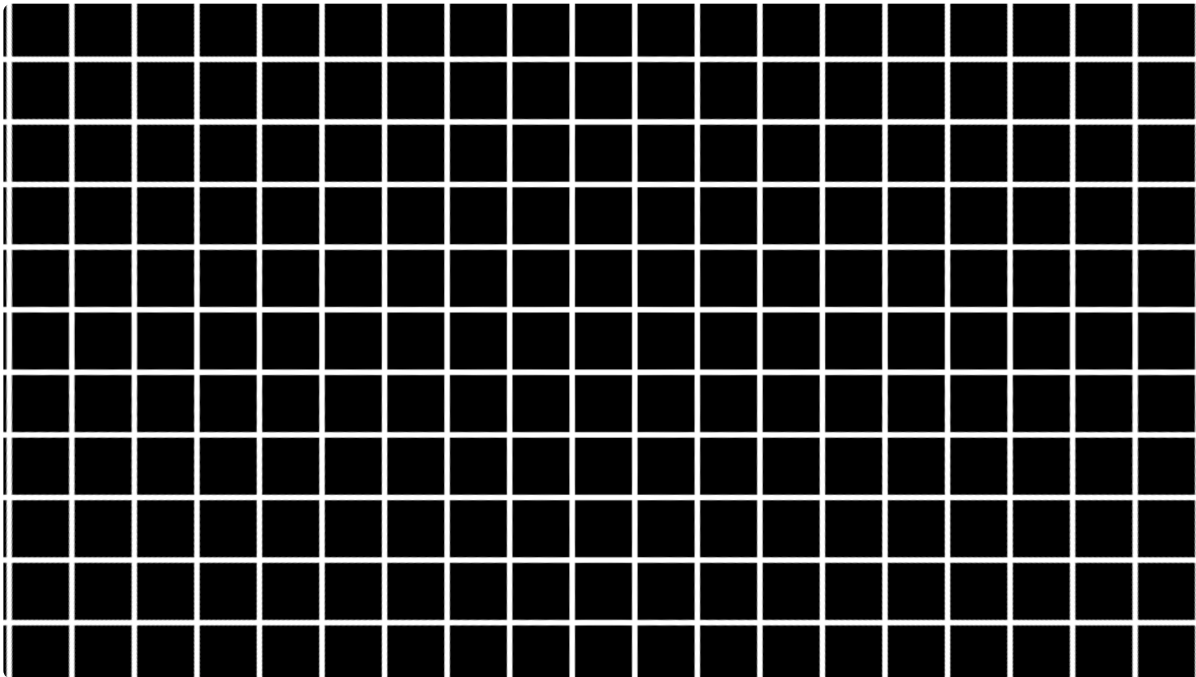
Scale anchor

When the layer is adjusted this controls how it is scaled.

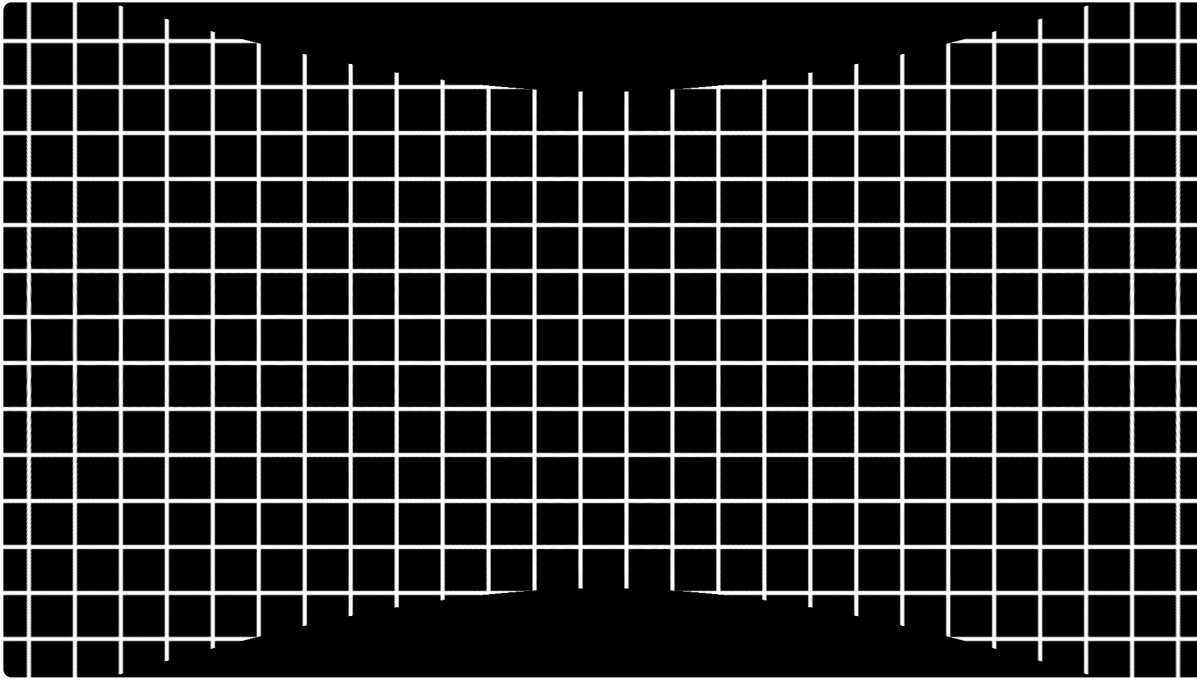
Corner maintains the corners of the image, scaling from the sides so that all the image is retained but some black areas are introduced:



Height scales the image so that the frame is filled vertically while some areas are cropped:



Width scales the image so the frame is filled horizontally, while some black areas are introduced at the top and bottom:

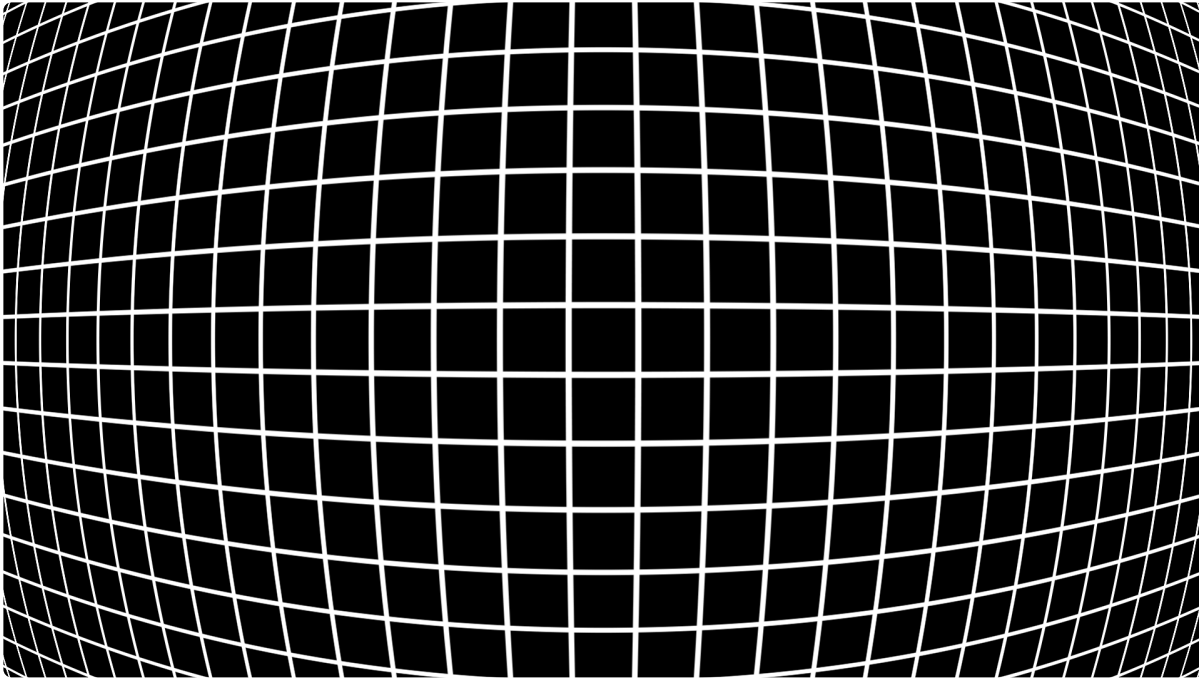


Layer resize

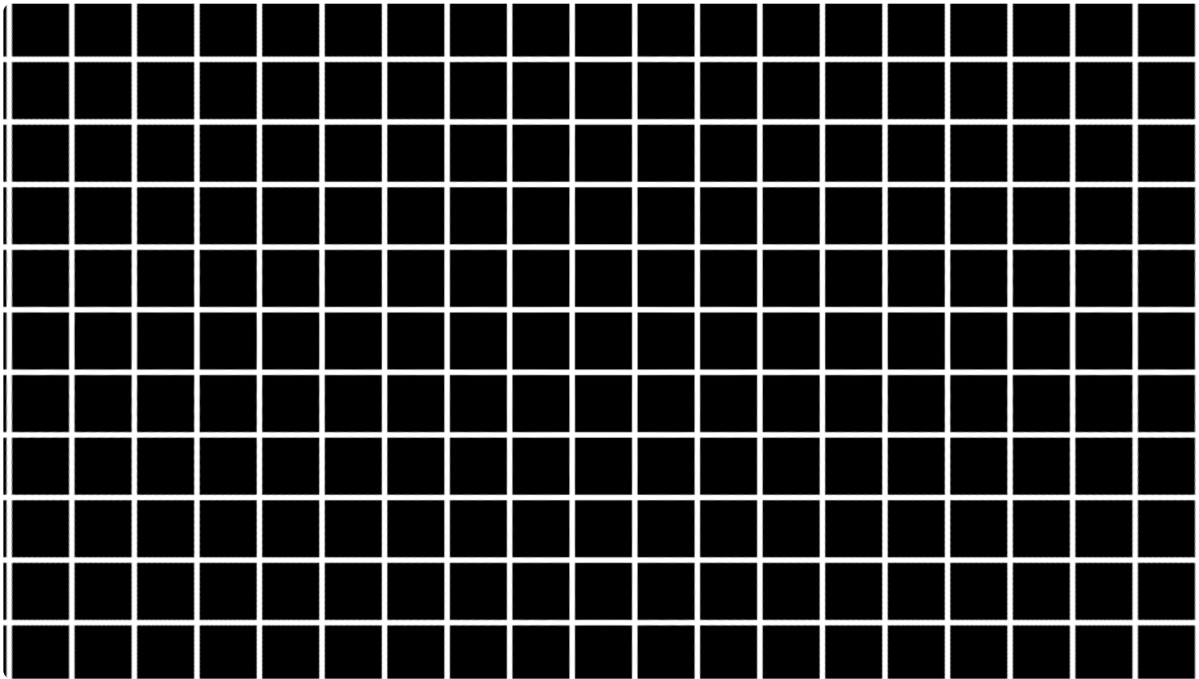
When the warp is applied some parts of the original frame are likely to be cropped outside of the frame. This is a natural and expected side effect of removing fisheye distortion.

If you are removing the distortion so that you can then apply other elements before re-distorting back to the original look this can lead to potential problems. For example, rewarping the unwarped grid results in lost areas around the edge due to the cropping:

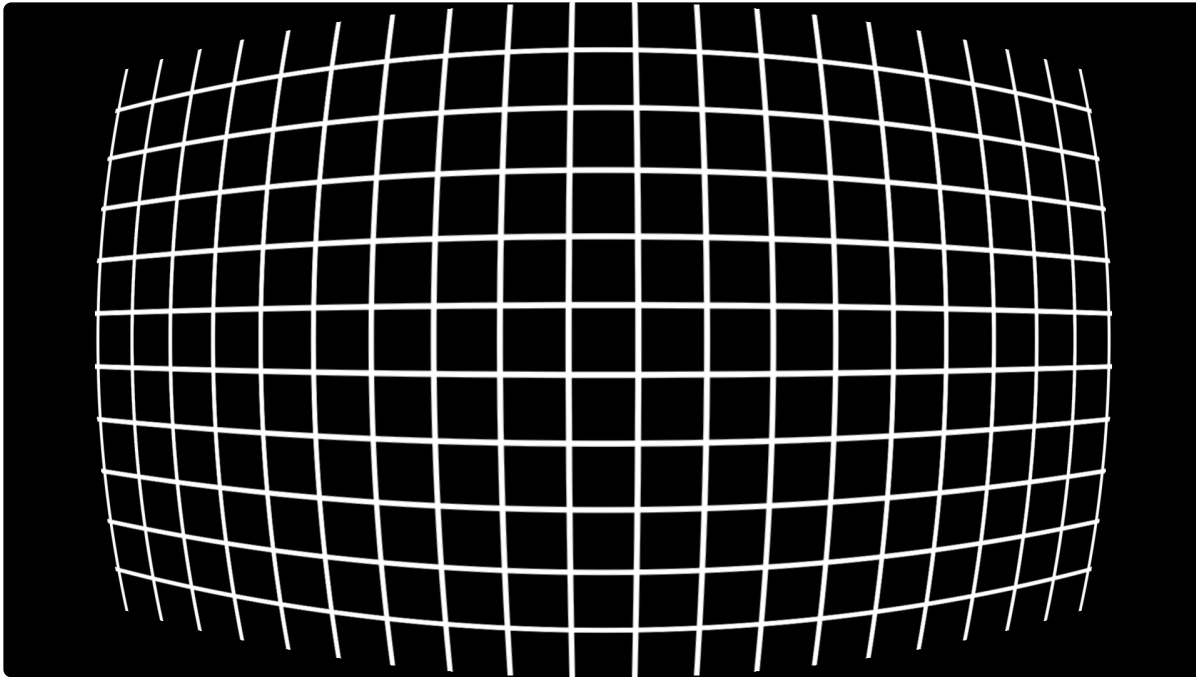
Original:



Fisheye removed:

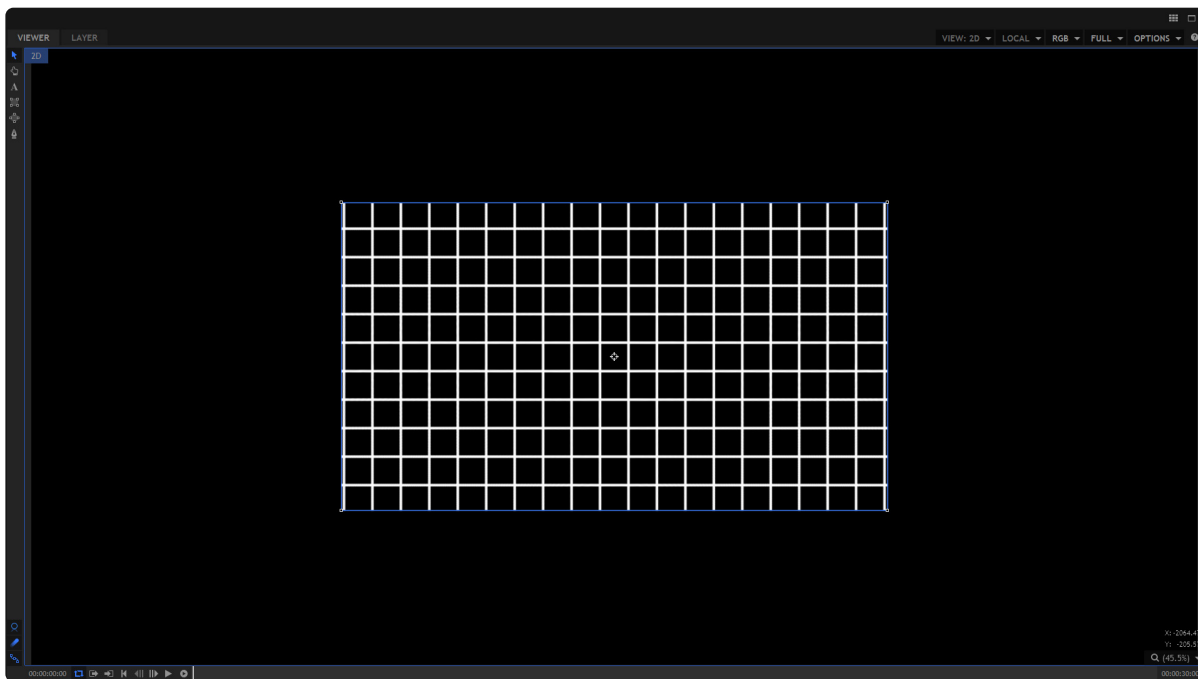


Fisheye reapplied using a reverse fisheye warp effect:



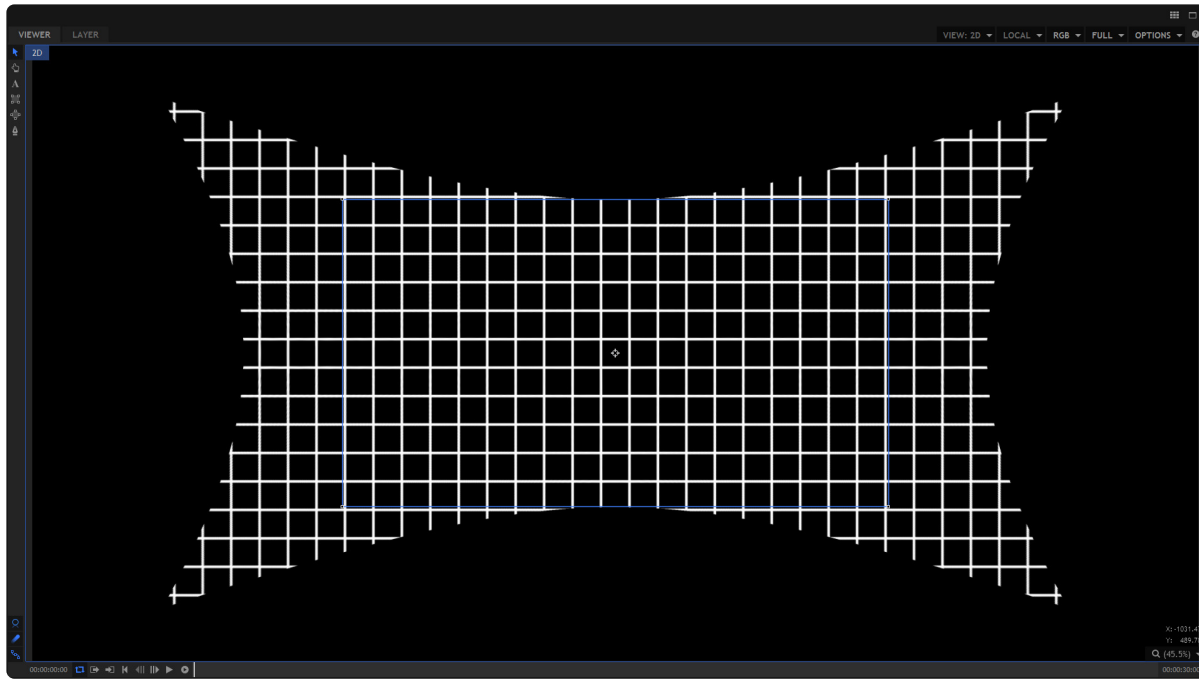
This can be countered using the Layer Resize options.

Take a look at this expanded view, with the Layer Resize set to None:



You can see that the undistorted grid is kept within the layer's boundaries.

Here is the same layer with the Layer Resize set to Grow:



Grow lets the layer expand beyond its boundaries, meaning that none of the original frame is lost. When this version is then redistorted using a second fisheye warp set to Reverse, the entire contents of the original are recovered.

Wrap

The various wrap options determine what happens if the effect produces empty areas of frame. Tile, Reflect and Blur Reflect fill in the empty areas using various techniques.

2.19.3. Bezier Warp

Provides the ability to distort the layer and fold it into new shapes.

It is generally easier to use the Viewer controls.



2.19.4. GoPro Lens Reframe

The GoPro Lens Reframe plugins was developed to reframe 360° video footage captured with GoPro cameras. It requires your footage to be imported in an equirectangular format using an aspect ratio of 2:1.

- **Projection:** Use this menu to select your intended output resolution and aspect ratio.

Source Operations

These controls are useful if you need to adjust the base positioning or orientation of the clip. All the adjustments or animation you create for your framing is based on the 'zero' position, so if the default zero position of the clip is not where you would like it, you can use the Source Operations controls to adjust it to the correct position.

- **Yaw:** Rotates the visible area of the layer left (negative values) or right (positive values).
- **Pitch:** Rotates the visible area of the layer downward (negative values) or upward (positive values).
- **Roll:** Rotates the visible area of the layer counter-clockwise (negative values) or clockwise (positive values).
- **Mirror:** Determines how the edges of the video are handled if the layer is scaled to a value where the edges become visible. Enabling this option will fill the area beyond the frame edges with a mirrored copy of the frame, to hide the edges.
- **EIS Crop (Hero Source):** Adjusts the amount of crop applied to the video to compensate for the Electronic Image Stabilization.

Main Controls

- **Pan:** Rotates your view left (negative values) or right (positive values).
 - Click-drag left or right within the large circle displayed in the Viewer to adjust this property visually.
- **Tilt:** Rotates your view upward (negative values) or downward (positive values).
 - Click-drag up or down within the large circle displayed in the Viewer to adjust this property visually.
- **Rotate:** Rotates your view clockwise (negative values) or counter-clockwise (positive values).
 - Click-drag the arrow outside the large circle displayed in the Viewer to adjust this property visually.
- **Lens:** Modifies the lens distortion at the edges of the frame. Adjust this value to straighten architectural lines, or to add distortion if it is desired.
- **Zoom:** Increases (larger numbers) or decreases (smaller numbers) the visible area of the frame.
 - Click-drag left or right within the small circle displayed at the top of the Viewer to adjust this property visually.
- **Shutter Angle:** Determines the amount of motion blur applied to any animated movement you create with the Reframe effect.

Advanced Controls

- **X Offset:** Allows you to shift the rotation point away from the center of the frame. Negative values move it left, and positive values move it right. Extreme values may create visible distortion in the image.
- **Y Offset:** Allows you to shift the rotation point away from the center of the frame. Negative values move it downward, and positive values move it upward. This is useful for positioning the horizon on the lower third or upper third when reframing your shot. Extreme values may create visible distortion in the image.
- **Sync Keyframes:** Enable this option to automatically add keyframes to all keyframe enabled properties of the effect, whenever the value for any single property is modified. This helps to avoid unwanted movement caused by out of sync keyframes.
- **Motion Blur:** Applies natural motion blur based on the speed of your animated camera movement. Disabling this option while animating the framing of your clip can help to speed up the process, but it should usually be enabled before your final render for the best results.

Second Camera

FX Reframe gives you the option of creating a secondary view of your footage. The second camera controls determine what is displayed in the secondary view, if you choose to use one.

- **Use Second Camera:** Toggle this option on to enable the secondary view. After being enabled, by default it is displayed as a circle in the center of the viewer.
- **Pan (Camera 2):** Rotates your secondary view left (negative values) or right (positive values).
- **Tilt (Camera 2):** Rotates your secondary view upward (negative values) or downward (positive values).
- **Rotate (Camera 2):** Rotates your secondary view clockwise (negative values) or counter-clockwise (positive values).
- **Lens (Camera 2):** Modifies the lens distortion at the edges of the frame. Adjust this value to straighten architectural lines, or to add distortion if it is desired.
- **Zoom (Camera 2):** Increases (larger numbers) or decreases (smaller numbers) the visible area of the frame.
- **Center X (Camera 2):** Changes the position of the secondary view, either to the left (negative numbers) or right (positive numbers).
- **Center Y (Camera 2):** Changes the position of the secondary view, either downward (negative numbers) or upward (positive numbers).
- **Radius X (Camera 2):** Defines the width of the secondary view.
- **Radius Y (Camera 2):** Defines the height of the secondary view.
- **X Offset (Camera 2):** Allows you to shift the rotation point of the secondary view away from the center of the frame. Negative values move it left, and positive values move it right. Extreme values may create visible distortion in the image.
- **Y Offset (Camera 2):** Allows you to shift the rotation point of the secondary view away from the center of the frame. Negative values move it downward, and positive values move it upward. This is useful for positioning the horizon on the lower third or upper third when reframing your shot. Extreme values may create visible distortion in the image.

- **Blend Softness:** Adjusts the transitional edge around the secondary view.
- **Show Divider:** Adds a darkened edge around the secondary view.

2.19.5. Lens Distort

Can be used to simulate lens distortion or remove unwanted distortion (such as from fisheye camera lenses).

2.19.6. Page Curl

Curls the layer like the page of a book, as if the layer were printed in a book and the page was being turned. Effective as a transition from one image to another.



- **Fold Corner:** Chooses a direction from which the page curl effect is generated.
 - **Top Left:** Starts the page curl from the top left of the composite shot or clip
 - **Top Right:** Starts the page curl from the top right of the composite shot or clip
 - **Bottom Left:** Starts the page curl from the bottom left of the composite shot or clip
 - **Bottom Right:** Starts the page curl from the bottom right of the composite shot or clip
- **Curl Point:**
 - **Position:** Adjust the pivot point of the page curl
 - **Use Layer:** Designates another layer to generate the coordinates for the page curl. This can be used in conjunction with a point layer for more control, or to parent the effect to a separate element.
- **Curl Radius:** Adjust the radius of the page curl on the affected area
- **Roll Up:** Toggles whether the page curl rolls itself after in relation to the curl radius parameter.
- **Mirror Rear:** Toggles whether a mirror image of the layer is seen on the reverse side of the page curl
- **Use Rear Alpha:** Toggles whether or not the reverse side of the page curl effect uses an alpha transparency inherent in the layer

2.19.7. Perspective Warp

Simulates rotating the layer in 3D.



2.19.8. Polar Warp

Wraps the layer into a circular shape.



2.19.9. Quad Warp

Adds quad controls to the layer so that you can change its shape by moving its corners.



2.19.10. Spherical Warp

Creates the appearance of a spherical lens, as if wrapping the layer around a concave or convex surface.



2.19.11. Vortex Displacement Warp

Similar to the Twirl distort effect but with additional displacement and vortex controls for pinching and stretching the affected area.

